Swiss Household Panel
User Guide
(1999 - 2008)

Wave 10
December 2009

By

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CHAPTER 1 INTRODUCTION

1.1 Aim

The principal aim of the Swiss Household Panel (SHP) is to observe social change, in particular, the dynamics of changing living conditions and representations in the population of Switzerland. During the years 1998-2007, the SHP was a joint project run by the Swiss National Science Foundation, the Swiss Federal Statistical Office and the University of Neuchâtel. Since January 2008, the SHP is part of the Swiss Centre of Expertise in the Social Sciences (FORS), located at the University of Lausanne.

The creation of the SHP was one of the key structural measures implemented by the Swiss Priority Program "Switzerland: Towards the Future" during the period 1998-2003 for the following two main purposes (Farago 1996, Joye and Scherpenzeel 1997):

1) To ensure a solid database for social reporting on stability and changes in living arrangements and well-being in Switzerland, that complements data collected by the Swiss Federal Statistical Office;
2) To promote opportunities for quantitative social science research, by making high quality data available to Swiss social scientists and to the international social science research community.

The structure of the SHP was formulated using international knowledge of the social sciences and the experiences of various panel surveys[1] in Europe and North America (Budowski et al. 1998, Budowski et al. 2001, Joye and Scherpenzeel 1997). It was based on theoretical work related to the structure and development of contemporary societies (Beck 1986, Eisenstadt 1990, Haferkamp 1990, Konietzka 1995, Leisering and Walker 1998, Mayer 1991, Müller and Schmid 1995), analyses of Swiss society and the way it functions (Höpflinger et al. 1991, Leu et al. 1997, Levy et al. 1997) and on literature about social monitoring (Davies 1994, Noll 1998).

Like other households panels, the SHP is a tool for fine-tuning conceptions and analyses of social dynamics. Although the dynamics at the macrosocial level are not directly observed in a panel survey, panel surveys are intended to investigate the effects of these changes on the living conditions of households and individuals, the manner in which these changes affect the individuals and households, and how they produce social change on a microsocial level. The main purpose of household panels is therefore to understand the processes, causes and effects of social changes.

Of course, panel surveys are not the only tools used to measure social change. A repeated cross-sectional survey makes it possible to calculate, for example, *net transitions* between two dates (e.g. a drop in the proportion of the population considered poor, or a

[1] Panel data are data collected from the same units at more than one point in time. It allows for insights into dynamic transformations – social processes and changes across time. Instead of simply taking a snapshot of people and households at one given point in time, by interviewing the same households and their members annually, panel data enables the following: the observation of changes for the same entities, the reconstruction of the nature and development of their actions, the examination of precedents, concurrent dynamics, and the consequences of alternative strategies.

rise in unemployment), but not *gross transitions* (e.g. the number of unemployed still without a job one year later). The data collected from household panels supplies *unique information*, allowing not only to estimate gross transitions but also providing an "understanding" of the transitions observed, i.e. the circumstances (family events, a change in the activity status, heath events, etc.) causing movements in and out of a given state (e.g. the fact that a household or an individual is living below a defined poverty line). In other words, by observing the same individuals over time it is not only possible to study the change in numbers but also the flow of movements between the various states of being and to establish links of causality between different factors and events.

Moreover, the SHP has two other main characteristics that increase its analytic potential:

(1) it is a comprehensive survey covering a broad range of social fields and a variety of topics (allowing for cross-domain analysis), and
(2) all members of the households in the panel aged 14 years and over are interviewed (allowing for intra-household studies).

1.2 Organisation and funding

To date, the SHP has experienced three main periods. In its first phase (1998-2003), created by the Swiss Priority Program "Switzerland: Towards the Future", the SHP was a joint project run by the Swiss National Science Foundation, the Swiss Federal Statistical Office and the University of Neuchâtel. At the end of the SPP "Switzerland: Towards the Future", the SHP has entered its second phase (2004-2007). Still located at the University of Neuchâtel, the SHP has developed a joint venture project "Living in Switzerland-2020" aimed at conducting the Statistics of Income and Living Conditions (SILC) pilot study 2004-2005 in collaboration with the Swiss Federal Statistical Office. The SILC pilot data were distributed by the SHP until the end of 2008. During the whole period at the University of Neuchâtel, the SHP has contributed to academic teaching. The third phase of the SHP is linked to the integration to the Swiss Centre of Expertise in the Social Sciences (FORS). Since 2008, the SHP, still funded by the Swiss National Science Foundation, is indeed located at the University of Lausanne within FORS.

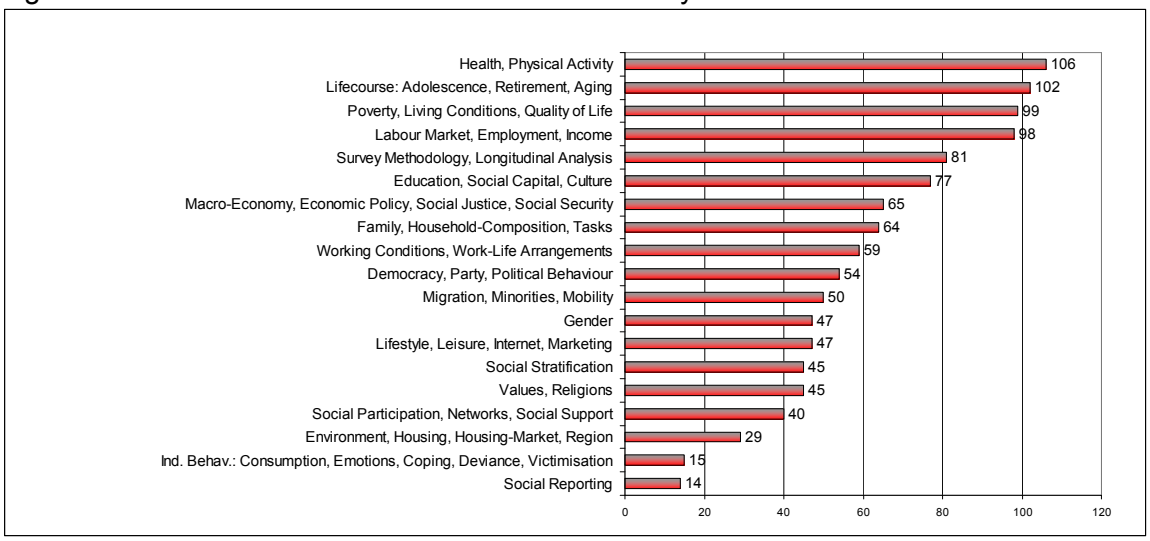
1.3 Use of the SHP

When analysing research domains indicated by the SHP data users (n=633), we found that 1137 topics of interest were mentioned. Figure 1 shows the relative importance of the single topic categories given by the SHP research network members.

The categories "Health, Physical Activity" leads the table, but still represents only 9% of all domains of interest mentioned by the active members of the SHP Research Network. "Lifecourse: Adolescence, Retirement, Aging", "Povery, Living Conditions, Quality of Life" and "Labour Market, Employment, Income" (each 9%) represent almost as frequently researched topics.

Most importantly, the analysis shows that the active data users of the SHP research network cover a very broad spectrum of research domains. This is a strong indication that the multidisciplinary SHP survey serves the research needs of a very diversified and interdisciplinary academic community, both nationally and internationally.

Figure 1.1 References to different areas of interest by SHP data users



Since the inception of the SHP in 1999, a great variety of issues of social and economic significance have been, continue to be, or can be studied using the SHP data. For example:

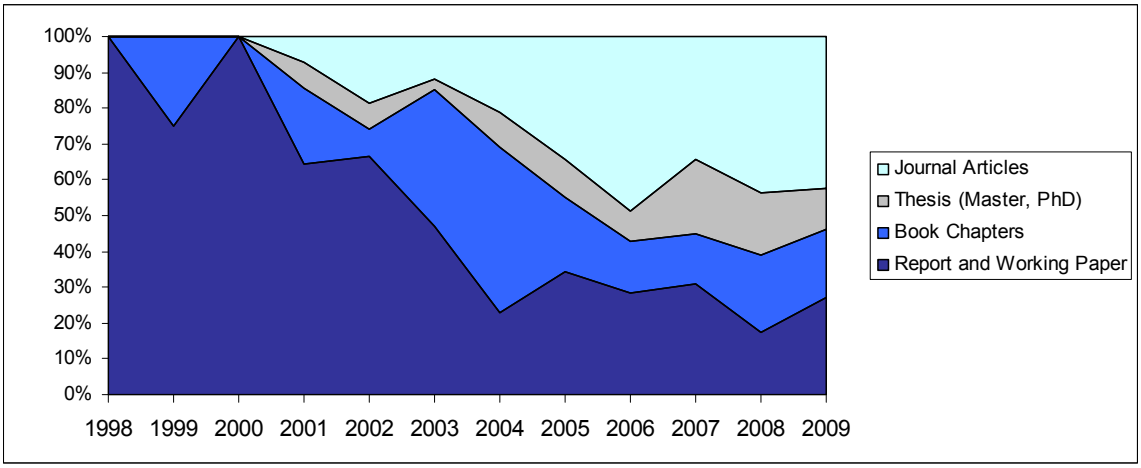
- *Evolving patterns in changing living conditions, quality of life and life satisfaction*: Who is progressively better or worse off and why? What are the necessary living conditions for warranting a good quality of life? Which objective and subjective factors most strongly determine life satisfaction?
- *Family life and interaction with society at large*: What are the consequences of various forms of living together in terms of social support and solidarity? Which "services" are produced and consumed within the family unit, obtained from the outside or provided by external bodies (e.g. care for children and the elderly)?
- *Labour market participation, work and life satisfaction*: What are the different forms of labour market participation (full-time vs. part-time employment, precarious and insecure employment, sub-employment vs. over-employment, under- and over-qualification, etc.) and their relationship to work and life satisfaction? How do people (especially women with small children) manage conflicting demands from the workplace and from home?
- *Poverty and social exclusion*: What kinds of living conditions are associated with poverty and social exclusion? What are the family and individual characteristics of the poor and what is the mechanism, which leads them out of poverty? Who remains poor despite policy measures for support? What are the complex relationships between poverty, social isolation and externally induced social exclusion?
- *Gender, social and economic participation*: How do life-trajectories diverge according to gender? Why do professional careers of men and women with similar educational resources still diverge?
- *Social determinants of health*: How is the life course of individuals and families of widely different origins and social conditions related to health behaviour and outcomes? What are the consequences of worsening living conditions on health? What impact does ill-health have on living conditions, employment and quality of life later in time?

- *Emotional trait stability over time*: How do changes in living conditions and/or health affect negative (anxiety, irritation, depressions) and positive emotional states (joy, hope, optimism)? Does a negative emotional state cause illness and low life satisfaction?

Evidence based answers to these and other questions are highly valuable for the formulation and implementation of new policies, since they facilitate political decision-making by means of increased transparency. The release of each consecutive wave of SHP data and the synergies between researchers working with the data is leading to a steadily increasing number of scientific publications.

All SHP data users are contractually required to report back any publication based on the SHP data, be it articles in journals, books, working papers, etc. This also applies to unpublished work such as diplomas, doctoral theses, or seminar work. Figure 2 shows the evolution of the number of publications by types since 1999. We highlight the growing share of journal articles.

Figure 1.2 Evolution of publications by types since 1999



1.4 SHP and CNEF

The SHP is currently part of the Cross-National Equivalent File (CNEF). The CNEF contains equivalently defined variables for the US - Panel Study of Income Dynamics (PSID), the German Socio-Economic Panel (GSOEP), the British Household Panel Study (BHPS), the Household Income and Labour Dynamics in Australia (HILDA), the Canadian Survey of Labour and Income Dynamics (SLID), the Swiss Household Panel (SHP) and the Korean Labor and Income Panel Study (KLIPS). The CNEF is designed to allow cross-national researchers access to simplified versions of these panels.[2] For acquiring the data, see

http://www.swisspanel.ch/doc/PSM_CNEF/index.php?lang=en

[2] For more information, see www.human.cornell.edu/che/PAM/Research/Centers-Programs/German-Panel/cnef.cfm or Frick et al. (2007).

1.5 Access to the data and data protection rules

The SHP data are available at no charge. Users must sign a contract available on our website:

http://www.swisspanel.ch/shpdata/contract.php?lang=en&pid=23

Once the contract is signed, users will have access to the most recent SHP Data.

The SHP data are available to researchers signing in person the data contract at no charge and exclusively for non-commercial use. It is strictly forbidden to attempt to identify particular households or individuals and to make parts or all of the data available to a third party. In a research team, all users are to sign the contract individually. SHP data users commit themselves to personally send a copy of all working papers, final reports or publications to the SHP (swisspanel@fors.unil.ch).

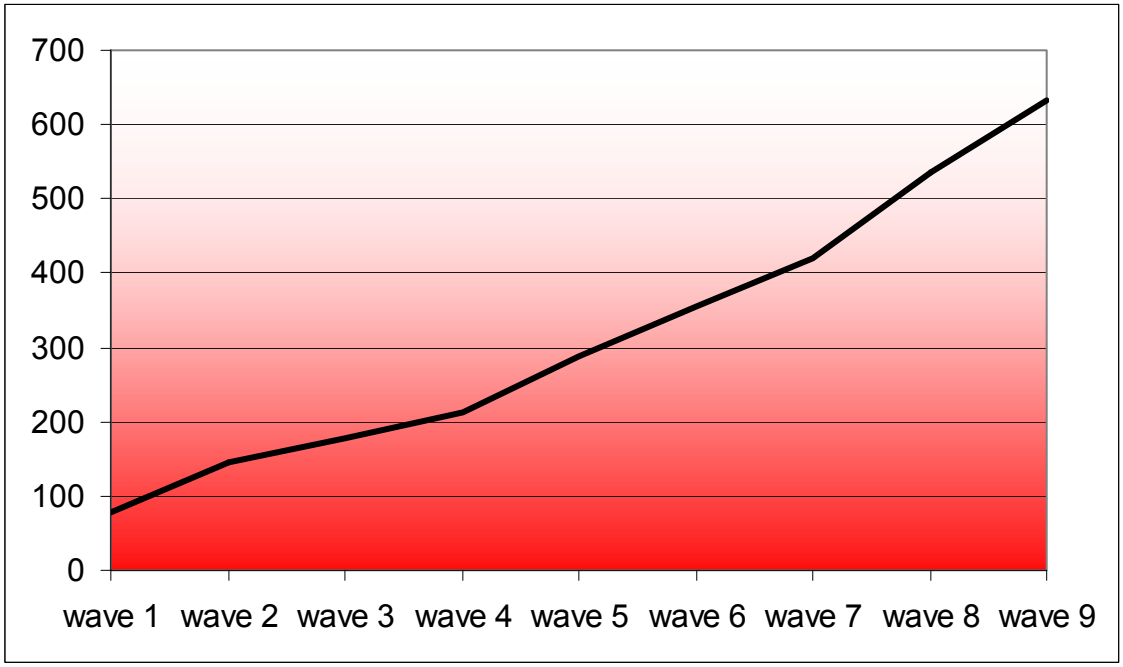
The following conditions regarding data use and data protection are to be strictly respected by the authorized data users:

- The use of the SHP data for commercial purposes is strictly forbidden.
- The SHP data are for the exclusive use of the person(s) signing the contract; it is strictly forbidden to make part or all of the data available to a third party. In a research team, all users have to sign the contract individually.
- Research topics and changes thereof are to be reported to the SHP team. Intended publications or semi-formal reports ("grey literature") using the SHP data must be announced as soon as possible to the SHP-team.
- A copy of research reports and manuscripts submitted to journals must be sent to the SHP-Team. In case of agreement of the author these documents will be made available on the SHP website.
- Users of SHP data automatically become members of the research network "Living in Switzerland"; contact information, research interests and title of reports and publications are displayed on the SHP website.
- Publications in paper or electronic format based on SHP data must carry the following mention: "This study has been realized using the data collected in the "Living in Switzerland" project, conducted by the Swiss Household Panel (SHP), which is based at the Swiss Centre of Expertise in the Social Sciences FORS, University of Lausanne. The project is financed by the Swiss National Science Foundation."(see "acquiring the data" on our website for the French and German versions of this mention).
- Publications tables and figures based on SHP data in paper or electronic format must carry the following mention: "Source: Swiss Household Panel (SHP)".
- Publications tables and figures based on SHP data in paper or electronic format must carry the following mention: "Source: Swiss Household Panel (SHP)".
- Data users and collaborators are to comply with the Swiss Regulations regarding data protection: in particular, users are to refrain from trying to identify a particular household or person and are strictly prohibited to use information for anything other than scientific research purposes. Published results shall not contain any information making it possible to identify any SHP household or interviewed person.

1.6 Research network Living in Switzerland

In December 2009, the research network "Living in Switzerland" had some 633 registered members (i.e. researchers who have signed a data contract since 1999 and received at least once a SHP CD), analysing the SHP data on a variety of topics: types of households and families, poverty, health, living conditions of elderly people, living conditions of first and second generation immigrants, political participation and life satisfaction, etc. Since spring 2008, SHP-Data is also distributed as part of the Cross National Equivalent File (CNEF). So far, 16 special contracts for CNEF-Data have been signed for the SHP. Figure 3 shows the continuous increase of SHP data users since the first wave.

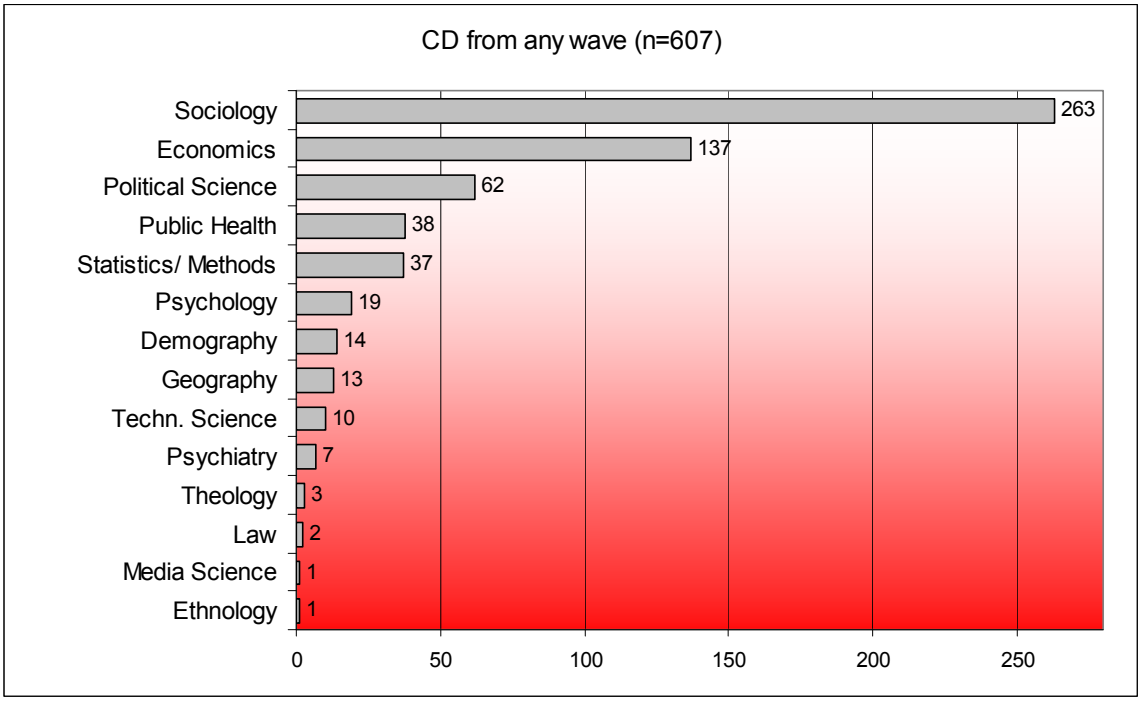
Figure 1.3 Users ever received a SHP CD (Final version SHP-Data)



Moreover, the prevalence of the various disciplines among the SHP data users (n=633) is shown in Figure 4. Among the SHP data users, sociology (42%) and economics (22%) are by far the most prevalent disciplines, followed by political science (10%), public health (6%), statistics (6%), and psychology (3%). But a few technical scientists and geographers are also present, indicating that spatially related topics are also being analysed using the SHP data.

The data users belong to the following institutions: Swiss academic institutions (66%), International academic institutions (17%), Public administrations (10%), and Private institutes (6%). National and international academic communities clearly dominate comprising 83% of all data users, but the "statistical" use by public administrations and private research facilities is certainly not negligible. Within Switzerland, all universities and many universities of applied science (Fachhochschule/HES) are represented among the data users.

Figure 1.4 Disciplines and their distributions among SHP data users



1.7 Getting more information

Questions? Please, write to: **swisspanel@fors.unil.ch**
Phone: +41 21 692 37 30.
Fax: +41 21 692 37 35.

The following persons will be happy to answer:

Topics	Information by	E-mail and phone
Registration, data contract, secretariat, research network, conferences	Denise Bloch	**swisspanel@fors.unil.ch** +41 (0)21 692 3730
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Data, communication with the households, instruction of interviewers, monitoring of the survey	Florence Lebert	**florence.lebert@fors.unil.ch** +41 (0)21 692 3715
Interviewer data, contact data, methods, programming in STATA	Oliver Lipps	**oliver.lipps@fors.unil.ch** +41 (0)21 692 3724
Data, methods, communication with the households, programming in SPSS and HLM	Valérie-Anne Ryser	**valerie-anne.ryser@fors.unil.ch** +41 (0)21 692 3740
Data, programming in SPSS (students), questionnaires, maintenance www.swisspanel.ch	Flurina Schmid	**flurina.schmid@fors.unil.ch** +41 (0)21 692 3716
Project information, questionnaires and documentation, preparation and monitoring of the survey, data dissemination (including use of SHP data in a teaching context)	Robin Tillmann	**robin.tillmann@fors.unil.ch** +41 (0)21 692 3721
Methods, attrition analysis, programming in SPSS and STATA	Marieke Voorpostel	**marieke.voorpostel@fors.unil.ch** +41 (0)21 692 3727
Attrition analysis, weighting, survey methodology, programming in SAS	Bryce Weaver	**bryce.weaver@fors.unil.ch** +41 (0)21 692 3746
Data, data sets, communal data, programming in SPSS	Boris Wernli	**boris.wernli@fors.unil.ch** +41 (0)21 692 3723

CHAPTER 2 STUDY DESIGN

2.1 General design of the SHP

Since its creation in 1999, the SHP survey "Living in Switzerland" has covered a wide range of subjects and methods in the area of social sciences. The survey is conducted annually from September to February by the M.I.S. Trend Institute in Lausanne and Bern using the computer assisted telephone interview technique (CATI).

The SHP is a panel, i.e. the same persons and households are interviewed year after year and answer, with a few exceptions, the same questions. In contrast to a rotating panel it is an indefinite life (simple) panel. There are, therefore, no regular activations of new units to be surveyed neither are certain other units withdrawn by choice. At present, the SHP can see the parallel progress over time of two samples: the SHP_I (the sample of households and individuals selected in 1999 and interviewed for the first time that year), and the SHP-II (the sample of households and individuals selected and interviewed for the first time in 2004).

In a household panel, information is collected at various levels (household, individual), so several questionnaires are used. The SHP uses three types of questionnaires: the household grid (lasting less than 10 minutes), the household questionnaire (lasting 15 minutes on average), the individual questionnaire (including a proxy questionnaire for those who are absent for a long period, who are handicapped, too ill to respond, or younger than 14 years). All individuals aged 14 or more (living in the household) are eligible to answer the individual questionnaire (lasting around 35 minutes).

2.2 Sample design

The first sample (SHP_I) is a stratified random sample of private households whose members represent the non-institutional resident population in Switzerland. In 1999, the methodology section of the Swiss Federal Statistical Office drew a random sample in each of the seven major statistical regions of Switzerland, on the basis of the Swiss telephone directory (SRH – Stichprobenregister für Haushalterhebungen), which covered over 95% of all private households. Selected in this way, the households are a representative sample of the various social groups in all regions of Switzerland. However, as the interviews are carried out in the three official national languages (German, French, and Italian) only, there might be a certain bias concerning how population groups who have recently migrated to Switzerland are represented. In order to compensate for the continual erosion of the original 1999 sample (deaths, hospitalisation, migration, refusals), a refreshment random sample of "new" households was injected in 2004 (SHP_II) following the same methodology.

2.2.1 Sampling plan

The samples of SHP_I and SHP_II are stratified by major geographic region (NUTS II), in proportion to the number of households per stratum.[3] The addresses of the gross sample are distributed in the following proportions (1990 and 2000 censuses):

[3] This part is taken from Graf (2009a, 10-12).

Table 2.1 Stratification of gross sample

Strata	Cantons[a]	Proportion of addresses SHP_I (%)	Proportion of addresses SHP_II (%)
Lake Geneva region	VD, VS, GE	18.45	18.22
Mittelland	BE, FR, SO, NE, JU	23.25	22.92
North-west Switzerland	BS, BL, AG	13.44	13.86
Zurich	ZH	17.51	18.22
Eastern Switzerland	GL, SH, AR, AI, SG, GR, TG	15.68	13.70
Central Switzerland	LU, UR, SZ, OW, NW, ZG	7.20	8.75
Ticino	TI	4.47	4.33
Total		100	100

[a]) See Appendix A for a list of cantons and their abbreviations

The selection is strictly proportional to the number of households per major region and does not take into account the average number of persons in the households per region. Ticino is not overrepresented.

The survey was based on the SRH which is updated quarterly in March, June, September and December. The SHP_I was taken from the SRH 02/99, the SHP-II from the SRH 02/04. The size of strata at the moment of the selection for SHP_I and SHP_II were as follows:

Table 2.2 Sizes (SRH) of strata at the moment of both selections

Strata	SHP_I (N)	SHP_II (N)
Lake Geneva region	714'725	648'590
Mittelland	837'452	784'266
North-west Switzerland	484'667	455'833
Zurich	646'469	587'850
Eastern Switzerland	531'731	493'606
Central Switzerland	313'548	306'605
Ticino	180'623	160'123
Total	3'709'215	3'436'873

2.2.2 Sampling frame

The population covered by the SHP consists of all individuals living in private households in Switzerland who had a telephone connection (landline or mobile) registered in the telephone directory. Individuals living in old peoples' homes, institutions, collective households or prison, are not part of this population. Persons who could not be contacted by telephone or whose telephone connection is not listed are not covered by the survey (undercoverage).

An estimated 98.5% of private households had a telephone connection at the time of the selection of the sample for the SHP_II in 2004. The SRH (survey frame for household

surveys) covered about 93% of these households. In 1999, at the time of the selection of the sample for the SHP_I, the SRH's coverage rate was about 95%.

The survey frame SRH is subject to the following errors:

- *undercoverage*: some households were not listed in the directory at the time of selection. This includes households whose numbers are not listed or households that could not be contacted by telephone. This problem may produce a bias, namely differences between the estimates based on the observed population (SHP survey) and those that would have been produced based on the target population (all individuals living in private households in Switzerland at a given time).

- *duplicates:* despite meticulous checking of the SRH to ensure that only one number is kept per household, some households appear more than once in the survey frame. This problem results in wrong initial selection probabilities. In spite of this, a correction factor is not calculated for households with several telephone lines. The information is available but the effect is negligible.

- *overcoverage*: selection of units outside the target population (businesses, homes, prisons, collective households, second homes ….). It should be noted that for a panel, this problem is only encountered at wave 1 and that these addresses are usually considered as out of sample (non-sample cases).

2.3 Following rules

2.3.1 Initial rules governing contact with households

The general rule is to interview all households that completed at least the grid during the previous wave. We proceed with interviews as long as members (of these households) agree to fill in the household questionnaire and his or her individual questionnaire (it is always possible to catch up with the other individuals in a future wave). However:

1. We permanently drop for following waves households that were not contacted at all during the 1st wave or those that did not supply any information at the time of the 1st wave (not even a grid) or those who only completed a non-response questionnaire for wave 1.

2. For SHP_I we permanently dropped all households that only replied to the grid at wave 1. For SHP_II, we changed this rule and only permanently rejected households that had only completed a grid for wave 1, if at wave 2 we did not collect more than its grid.

3. We drop households who give a "final refusal" (households where no one is willing to respond to a household interview after refusal conversion attempts), those who move away from Switzerland and those who are fully and permanently institutionalized.

2.3.2 Initial rules governing the follow-up of individuals

4. Respondents (OSM = Original Sample Member) and their children are continuously followed, whereas cohabitants are only (re-)interviewed as long as they live with an OSM. From wave 9 onwards also cohabitants are followed.

5. The minimum age of eligibility is 14 years.

6. As a general rule, respondents (OSM) are followed until they die or are permanently institutionalized (or leave the target population for another reason).

7. Individuals giving a "final refusal" for two consecutive waves, as well as those who send us a written refusal are rejected.

2.3.3 Additional rules to fight attrition

The following measures were taken to reduce attrition rates from 2006 to 2008 (waves 8 to 10 of SHP_I and waves 3 to 5 of SHP_II): contacts with all SHP_I households which had refused to participate between 2000 and 2003, that is at waves 2, 3, 4 and 5[4]; contact with past "final refusal" households which participated again after renewal of contact in 2006 and 2007; contact with refusing SHP_I households in 2006 and 2007 (waves 8 and 9); contact with refusing SHP_II households in 2005, 2006 and 2007 (waves 2, 3 and 4 of SHP_II); follow-up of non-original sample members.

2.4 Questionnaires

2.4.1 Content of the questionnaires

The Living in Switzerland survey is a comprehensive survey. The questionnaires (household and individual) cover a broad range of social fields and topics. They are also designed to collect both „objective" (resources, social position, participation, etc.) and „subjective" data (satisfaction, values, evaluation, etc.). The whole constitutes an operationalisation of the different elements of the microsocial level: living conditions, life events, attitudes and perceptions, and lifestyles/ways of life (Budowski et al. 1998).

A household panel collects data at two levels: the household and the individual. In the case of the SHP-survey, the questionnaire at *the household level* covers the following areas:

1. *composition of the household:* containing basic information about all the members of the household, such as the age, sex, relations between the members of the household, nationality, level of education and occupational status;

2. *accommodation:* containing „objective" elements, such as the type and size of the accommodation, home ownership or tenancy, the cost of and/or the subsidies received for housing, as well as „subjective" elements, such as satisfaction with the accommodation, evaluation of the state of the accommodation and assessment of perceived nuisances;

[4] Out of the 1,520 "asked again" SHP_I households in 2006 and 2007, 580 completed at least the grid interview.

3. *standard of living*: referring to a list of goods owned by the household or activities that its members can carry out, together with the reason (financial or otherwise) why goods are not owned or activities not carried out;

4. *the household's financial situation*: containing „objective" information such as the existence of financial difficulties (and the household's reactions to different situations), indebtedness and the reasons for it, the total household income, the amount of tax paid, and the social and private transfers, as well as „subjective" elements, such as satisfaction, an estimate of the minimum income the household considers necessary or an evaluation of how the household's financial situation has evolved;

5. *the household and the family*: collecting information on any external help available to the household for housework or child-care, the sharing of tasks, and decision-making within the household.

The *individual questionnaires* cover the following topics:

1. *the household and the family:* comprising „objective" elements, such as the existence of children living outside the household, the sharing of housework and childcare, as well as „subjective" elements, such as satisfaction with private life and with the sharing of the housework;

2. *health and „victimisation":* covering „objective" elements, such as general illness and health problems, visits to the doctor and hospitalisation, long-term handicaps, threats or attacks endured, together with „subjective" elements such as the self-perceived state of health, the estimated evolution of the state of health, or satisfaction with one's own health;

3. *social origins (asked at first interview only):* referring to information related to profession, professional position, educational level, political positioning, and the nationality of both parents together with possible financial difficulties in the family of origin;

4. *education:* covering the various levels of achieved education, education currently being pursued, fluency in foreign languages, and participation in on-the-job training;

5. *employment:* considering four different aspects: firstly, the collection of information necessary to determine the status of the interviewee in the labour market, secondly, information covering the current main employment, thirdly, details about the last main job held. These modules also comprise „objective" elements, such as profession, status of the profession, the number of hours worked, work schedule, atypical work, as well as „subjective" elements such as satisfaction with various aspects of the job, the evaluation of promotion prospects or of personal qualifications;

6. *income:* including „objective" elements such as total personal income, total professional income, received social transfers, received private transfers, and other income, and „subjective" elements, such as satisfaction with the financial situation and an evaluation of changes concerning the personal financial situation;

7. *participation, integration, networks:* taking into account „objective" elements, such as frequency of social contacts, non-remunerated work outside home, participation in associations, membership of and participation in religious groups, and „subjective" elements

such as the assessment of social capital by means of evaluation of potential practical help and emotional support (from various social networks);

8. *politics and values:* referring to „objective" elements such as political participation, membership, party identification, political positioning; and „subjective" elements such as satisfaction with the political system, the evaluation of issues or even political values; and finally

9. *leisure and media:* comprising „objective" elements, such as leisure activities and the use of the media as well as „subjective" elements, such as satisfaction with leisure and free time.

From the second wave on, the questionnaire also includes a „life events" module and an „occupational calendar" module (covering the 12 months prior to the interview).

More information on the content of the questionnaires is available here:
http://www.swisspanel.ch/codebook/cblqre.php?lang=en&pid=207

And here (as pdf):
http://www.swisspanel.ch/doc/q_pdf.php?lang=en&pid=20

2.4.2 The use of 11-point scales[5]

For many questions of the Swiss Household Panel questionnaire, the 11point scale has been chosen instead of a category scale. The 11point scale is used in many other ongoing surveys, for example the GSOEP and World Value Study, and seems to be well handled by respondents. Respondents are asked to indicate the strength of their attitude or opinion in a number between 0 and 10, with the endpoints 0 and 10 being defined by verbal labels. This type of scale is often called a "number production scale".

The main arguments in favour of this type of scale are:

1. Minimisation of categorisation effects
We assume that attitudes fall along a single, latent continuum, ranging from positive to negative. The larger the number of points on a response scale, the better it represents this underlying, latent continuum and the more accurate it reflects the variation. Scales with relatively few response alternatives force respondents to categorise their reaction towards an attitude object instead of directly mapping it onto the response continuum, thus causing information loss. Early research has already shown that respondents differentiate more between objects when offered response scales with greater numbers of categories (Bendig, 1954; Garner, 1960). The larger the number of points, the more powerful the scale is in discriminating, but at a certain point respondents become unable to make fine distinctions and thus round off.

2. Improvement of data analysis
Improving the measurement procedures is one way to improve the quality of data analysis. In their investigation of the possibilities to optimise measurement procedures in so-

[5] This section is a summary. See www.swisspanel under Documentation for the complete version.

cial science, Van Doorn, Saris, and Lodge (1983) did not simply enlarge the number of scale points, but used psychophysical scaling (see also Lodge, 1981). Respondents expressed their answers on continuous scales by drawing lines or assigning numbers to their opinions, thus creating interval level measures. The best alternative to category scales within the class of magnitude estimation scales that can be used in CATI is the number production scales.

It is essential that a magnitude estimation scale has fixed anchors, or reference points. The 11 point number scale used in the panel questionnaire has, for example, two reference points, 0 and 10. These reference points have been given labels that clearly indicate the end point of the scale, for example: 'completely satisfied' and not, for example: 'very satisfied'. Scales with two or more reference points and clear labels that fix the end points have proven to decrease the measurement error that can result from variation in response functions (Saris and De Rooij, 1988).

3. Reliability of the data (less measurement error)
Another argument is the effect of measurement error, or the reliability of the data. Scales with more response alternatives will be more reliable than those with fewer. It is often stated that the reliability of scales increases with the number of points used. There is probably a limit to the benefit of adding response categories or scale points. An international study of satisfaction, across 10 different countries, showed that the 11 point scale was the most valid and reliable scale of all scales included in the study (Scherpenzeel and Saris, 1995).

In addition, the reasons why this type of scale is especially suitable for CATI are:

4. Time saving
The number production scales do not consist of lists of alternatives that all have to be read aloud in a telephone interview. Instead, *only* the first and end point are read aloud and respondents are asked to produce a response alternative themselves. This takes considerably less time than reading lists of fully labeled categories.

5. No response-order biases
Response alternatives presented at the beginning and end of a list may be more likely to be recalled and therefore perhaps selected more often. When no visual aids are presented and when the list is long, memory effects may be important (Schuman and Presser, 1981).

The number production scales do not consist of lists of alternatives. Instead, *only* the first and end point are read aloud and respondents are asked to produce a response alternative themselves. Since CATI is exclusively oral, verbal category scales are likely to suffer from the response-order biases. Therefore, number production scales are more appropriate in CATI.

Chapter 3 Fieldwork

This chapter provides information on how the fieldwork for the SHP is carried out. Starting with the selection and training of the interviewers we describe how the participating households are approached through to the measures taken to increase response and quality control.
Since the beginning in 1999, the fieldwork for the Swiss Household Panel (SHP) is done by M.I.S. Trend in Lausanne and Bern (www.mistrend.ch), conducting computer-assisted telephone interviews (CATI) in German, French and Italian.

3.1. Approaching the participating households

The fieldwork is scheduled from September to February and starts with sending a letter to the participating households informing them about the upcoming interviews.
To make sure that the first personal contact by an interviewer follows shortly after the initial mail (approximately one week later), the letters are sent in three mailings with an interim of one week. Enclosed with the preliminary mail, participants receive a newsletter containing some results of recent analyses of the SHP data (for further information see 3.3.4.).

Households that did not respond since at least one wave are contacted at a later point in time, also divided in three groups. They are treated like households refusing in the current wave. Therefore, these households are contacted by the best performing interviewers who received special refusal conversion training (see also 3.3.3).

3.2 Selection and training of interviewers and supervisors

To guarantee smooth functioning of the fieldwork, M.I.S. Trend employs a large group of interviewers plus especially trained supervisors. Before the start of the fieldwork interviewers and supervisors participate in a training consisting of two sessions.

The supervisors' training aims to prepare the supervisors for their roles as contact persons, organizers of the interviews and supervisors of the interviewers. The supervisors – who are experienced interviewers – are responsible for the performance of the interviewers.

The aim of the interviewers' training is to become familiar with the SHP in general, with its longitudinal design and the specific difficulties. Complex items are discussed and the interviewers learn how to convince respondents to participate at the survey. They work through the questionnaires and study the training manual as well as the advance letters and newsletters which the participating households received.

The training sessions are conducted by M.I.S. Trend in Lausanne and Bern, with the assistance of the supervisors and a member of the SHP-Team.

For the refusal conversion, only the most successful interviewers – measured by their individual response rate and the quality of their interviewing performance – are used. Extra training is conducted to be well prepared.

M.I.S. Trend ensures a strict selection of only the most experienced interviewers and guarantees that all interviews are conducted by native speakers.

3.3 Measures to increase response

Over the past years, the SHP has taken several measures to fight attrition. These measures concern: incentives for the interviewers, incentives for the participating households, refusal conversion, maintaining contact with the households and minimizing noncontact.

3.3.1. Incentives for the interviewers

To increase the interviewers' motivation they can earn two collective bonuses. One bonus is based on the general response rate: interviewers have to accomplish at least 95% of last year's individual interviews. The second bonus is oriented towards interviewers who are engaged in refusal calls only and is based on the refusal conversion rate. Additionally, there are regular briefings of all interviewers and supervisors on the progression of the fieldwork.

3.3.2 Incentives for the participating households

To encourage respondents to participate in the survey, one of the following incentives are offered: a voucher for the cinema, a voucher for the Swiss railways or a donation to charity (e.g. Amnesty International, WWF, Caritas).

The incentive is sent to the respondent one week after completing the individual interview at the latest aiming to encourage other members of the household to also take part in the survey.

3.3.3. Refusal conversion

Households that have not participated in the survey for one year or more have been reapproached progressively. These households are sent a preliminary letter with the request to take part in the next wave of data collection including a railway voucher. Only the most successful and specially trained interviewers are allowed to contact these households. Similarly, households and individuals who refuse participation in the current wave are re-contacted at a later point by refusal conversion trained interviewers.

The refusal conversion rate amounts to nearly 40%.

3.3.4. Maintaining contact with respondents

To avoid household drop out of the panel because of unsuccessful tracing (due to moving, changed phone numbers, households splits, etc.), several measures are taken to ensure that contact can be established with the respondents in new waves.

First, the participating households are informed annually by means of a newsletter enclosed with the advance letter at the start of each fieldwork phase.
In 2009, the SHP used tailored leaflets designed for specific groups of households: families with children, couples without children, people living alone, and people of 65 years and older. The leaflets treat topics that inform targeted households about study results that are most likely of interest to them.

The newsletters of the years 1999 to 2008 can be viewed here:
http://www.swisspanel.ch/informations/household.php?lang=de&pid=33,
The tailored leaflets for 2009 here:
http://www.swisspanel.ch/informations/results.php?lang=de&pid=203.

3.3.5. Minimizing noncontact

To minimize noncontact, respondents are asked to leave their mobile number and/or their e-mail address. If respondents are not willing to give such information or do not have a mobile number or e-mail address, they are asked to leave the address of an auxiliary (e.g. a family member living outside of the household or a close friend) who can help in case of losing track of the respondent.

Households are called on different days of the week and on different times during the day in order to minimize noncontact. A bilingual interviewer responsible for administration and tracking of the addresses is briefed specially on how to find relocated respondents.

Measures that are taken in case the advance letter is returned to sender are the following:

- Checking whether phone number is still valid
- Contacting mobile phone, e-mail address or auxiliary
- Searching directories and the local inhabitant register
- Request the dcl data care (a service of the Swiss post mandated to seek currently valid household addresses and the corresponding phone numbers)
- If no phone number can be found, a form is sent to the address provided by the dcl data care asking to complete contact details.

3.4. Quality control

Prior to each wave, extensive pretests are carried out, checking correct technical functioning of filters and new items and running different scenarios.
After the training of supervisors and interviewers (for more details see 3.2.), the fieldwork agency monitors the interviewer performance during the fieldwork: supervisors listen in to the interviews, evaluate interviewers on several criteria (e.g. accurateness and pace of reading, argumentation), document performance and give feedback to the interviewers.
M.I.S. Trend carries out the training and monitoring of interviewers in collaboration with the SHP-Team.

4. DATA QUALITY

4.1. Response rates and attrition

4.1.1 Response rates

Tables 4.1 and 4.2 indicate the number of validly interviewed households and persons for the years 1999-2008. See Appendix A for further detail on response figures.

SHP_I

With respect to the first sample, SHP_I (waves 1 to 10), 5,074 households were first interviewed in 1999. In the tenth wave, 2,718 households and 4,494 persons responded. Out of the 7,799 persons interviewed for the first time in 1999, 26% (n=2,060) responded to their personal interview in each of the following waves including the tenth wave conducted in 2008. At the household level (see Table 4.1, % A), the drop in participation was particularly significant in the second (13%) and the fourth (11%) waves, compared to the other waves in the 1999-2005 period (5 to 8%). From 2006 onward, the number of households validly interviewed increases in general (but note the slight 2008 reduction in the number of interviews conducted) due to various measures taken to convert households, who where abandoned earlier because of double refusals, into respondents (see for more information the Swiss Household Panel Scientific Report 2008, downloadable from www.swisspanel.ch under Project/Evaluation and Scientific Report).

At the individual level (see Table 4.2, % A), the drop in participation was particularly significant in the fourth (12%) wave as compared to the other waves in the 1999-2005 period (between 6 and 10%). From 2006 onward, the number of persons validly interviewed increases in general (but note the slight 2008 reduction in the number of interviews conducted) due to (1) various measures taken to convert households, who where abandoned earlier because of double refusals, into respondents, and (2) efforts made by the interviewers of M.I.S. Trend, to enroll all eligible household members for an individual interview.

SHP_II

With regard to the SHP_II (waves 1 to 5), 2,538 households and 3,654 individuals were first interviewed in 2004. In the fifth wave, 1,546 households and 2,410 persons were answering. At the household level (see Table 4.1, % A), the drop in participation was highly significant in the second wave (29%) as compared to 5 to 8% for the three other waves in the 2004-2007 period[6]. In 2008, the number of households validly interviewed increases due to renewal of contacts with households who where abandoned earlier because of double refusal (like for the SHP_I).

At the individual level (see Table 4.2, % A), the drop in participation was – as at the household level - particularly significant in the second wave (28%), compared to the other waves in the 2004-2007 period when the drop in participation lay between 2 and 6%. In 2008, the number of persons validly interviewed increases slightly due to (1) re-

[6] Contrary to the SHP_I starting in 1999, the household recruited in 2004 were not explicitly asked to commit themselves for several years. According to the interviewers, many households were surprised to be called one year later, to be interviewed again in the ongoing panel study.

newal of contacts with past refusal households, and (2) efforts made by the interviewers of M.I.S. Trend, to enroll all eligible household members for an individual interview.

However, it should be noted that drop in participation is quite similar for both panels after five waves (SHP_I 2003 and SHP_II 2008).

Table 4.1: Number of *households* validly interviewed in SHP_I and SHP_II (1999-2008)

Year	Wave	SHP_I n =	%* A	%** B	SHP_II n =	%* A	%** B	SHP_I+II n =
1999	1	5,074	100	100				
2000	2	4,425	87	87				
2001	3	4,139	82	94				
2002	4	3,582	71	87				
2003	5	3,227	64	90				
2004	6/1	2,837	56	88	2,538	100	100	5,375
2005	7/2	2,457	48	87	1,799	71	71	4,256
2006	8/3	2,537	50	103	1,684	66	94	4,221
2007	9/4	2,817	56	111	1,494	58	89	4,311
2008	10/5	2,718	54	96	1,546	61	103	4,264

Table 4.2: Number of *persons* validly interviewed in SHP_I and SHP_II (1999-2008)

Year	Wave	SHP_I n =	%* A	%** B	SHP_II n =	%* A	%** B	SHP_I+II n =	SHP_I (fully longitudinal) n =	%* A	%** B
1999	1	7,799	100	100	7,799	100	100				
2000	2	7,073	91	91	6,335	81	81				
2001	3	6,601	85	93	5,429	69	86				
2002	4	5,700	73	86	4,480	57	83				
2003	5	5,220	67	92	3,888	50	87				
2004	6/1	4,413	57	85	3,654	100	100	8,067	3,076	39	79
2005	7/2	3,888	50	88	2,649	72	72	6,537	2,622	34	85
2006	8/3	4’091	52	105	2,568	70	97	6,659	2,399	31	91
2007	9/4	4,630	59	113	2,350	64	92	6,980	2,209	28	92
2008	10/5	4,494	58	97	2,410	66	103	6,904	2,060	26	93

*These percentages are calculated on the basis of the number of interviews conducted in the first year (1999 or 2004).
**These percentages are calculated on the basis of the number of interviews conducted in the previous year. They may therefore exceed 100%. Since 2006, the number of interviews increases due to various measures taken to convert households, who were abandoned earlier because of double refusals.

4.1.2 Attrition

As nonresponse can cause nonresponse bias in survey estimates (Behr, Bellgardt and Rendtel, 2005, Groves 2006, Groves and Peytcheva 2008), there is a need for research on the impact of attrition on the representativeness of the longitudinal sample of the SHP and how this might impact variables of interest and research findings. Analyses were performed to shed light on the impact of attrition in the SHP focusing on potential bias in

variables of interest. Below, a study on nonresponse and bias in variables of interest is reported.

We refer to Appendix C for a general impression of how respondents with different response patterns differ from each other on demographic characteristics and several measures of social involvement. A comparison is made between respondents who are in the panel every wave, respondents with an irregular response pattern and respondents who have dropped out of the panel. Note that calculations are based on unweighted data. For the complete study we refer to the SHP Working Paper (Voorpostel, 2009) on the website (www.swisspanel.ch). A comparable study on attrition in relation to income as well as other studies on attrition can be found here as well (Kuhn, 2009; Lipps, 2006a, 2006b, 2006c; Voorpostel, 2009).

Attrition in variables of interest

This is a brief discussion on the variables touched by attrition. By "touched by attrition" we mean the variables that demonstrate a bias after subsequent waves. The technique used to detect bias is the one proposed in Graf (2009b). It tries to capture the effect of attrition alone and not the effect of evolution due to time. The technique is also not designed to detect any bias that is introduced in the sample selection or non-response in the first wave of the survey. The test described in the section "technique" was done on the first panel (SHP I) only; tests will be performed to see how the combined panels evolved and be released in a later report. However, this should give an idea of the variables that are related to attrition. Not only is bias due to attrition searched for, but it is checked whether the longitudinal weights correct for it. A list of variables whose bias persists after weighting is listed in the section "results". These results should be considered preliminary as a more complete report will be released in 2010.

Technique

In order to assess the effect of attrition, only individuals that responded in wave 1 (1999) are considered. The following subsets are therefore constructed:

$$sL^{R99} = sL^{99}$$

$$sL_{00}^{R99} = sL^{99} \cap sL^{00}$$

$$sL_{01}^{R99} = sL^{99} \cap sL^{01}$$

$$\dots$$

$$sL_{08}^{R99} = sL^{99} \cap sL^{08}$$

where sL^{99} is the set of respondents in 1999 and $sL^{\$\$}$ are the longitudinal respondents in year 20$$. The 1999 responses are then compared on these subsets, even for the respondents of later waves. By using the 1999 responses only, we avoid interpreting evolution of the sample as being an effect of attrition.

For **numerical variables**, a 95% confidence interval is placed around the mean calculated on the set of respondents in sL^{R99} and subsequently on $sL_{\$\$}^{R99}$ for $$ = 00 … 08. If the interval calculated on sL^{R99} does not intersect the interval calculated on $sL_{\$\$}^{R99}$ the variable is considered to have developed a bias due to attrition in the year 20$$. If such a bias is detected in any year then the variable is considered to have been marked by attrition bias.

For **categorical variables**, the 95% intervals are placed around the percentages for each category having more than 30 respondents. If the interval does not intersect for any categorical value then the variable is considered to have attrition bias for the year in question.

The test is first performed using the samples un-weighted. The process was then repeated using the cross sectional weight for 1999 and the first panel longitudinal weight for the other years to see if the longitudinal weights corrected for the bias.

Results

There were 308 variables tested for attrition bias at each wave. The variables not tested were left out due to either to much modality, insufficient cases in the categories, or the complete absence of variation in the 1999 responses (that is all of the applicable responses were the same). Table 1 lists the magnitude of variables apparently touched by attrition bias in any of the waves with the number for 2008 appearing in parentheses. As can be seen by the tables, the weights do seem to correct for much of the bias due to attrition, particularly for a given year.

Table 4.3 The cumulative results for all waves combined and 2008 independently

Significant difference without weight	**Significant difference with weight**	**Signification and biased variables**	**Number of occurrences in all of the 308 variables tested (2008 in parentheses)**
No	No	No significant difference, with or without weights. The variable considered does not appear to be biased from attrition.	**211 (231)** 68.5% (75.0%)
No	Yes	No significant difference without the weights, but the weighted results have a difference. The weighting biases the variable.	**6 (1)** 1.9% (0.3%)
Yes	No	We observe a significant difference without weights, but it disappears when the results are weighted. The variable is therefore touched by attrition but the weighting corrects the phenomena.	**59 (63)** 19.2% (20.5%)
Yes	Yes	We observe a significant difference without the weight and it persists even with weighting. The variable is therefore touched by attrition without the possibility of correction by weighting. Mainly leisure and politics variables.	**32 (13)** 10.4% (4.2%)

Table 4.4 lists the 38 variables (6+32 from Table 1) that showed bias after weighting for any year and the years in which they demonstrated bias. It should be noted that the majority of these variables demonstrated bias in only one year (20 out of 38). Since the bias only appears in a limited number of years, this is not to discourage researchers from using these variables. It is more to encourage them to use some caution in the use of these variables, particularly those that are affected in many years. Furthermore, the

test only measures for attrition bias on population totals; it is not known whether this has any effect on the interaction between variables, such as coefficients in regressions.

Table 4.4 The list of variables and years with bias after weighting

VAR99	Label99	years affected by bias
CIVSTA99	Civil status in year of interview	2004
OCCUPA99	Actual occupation, from grid	2006, 2005, 2004
P99A11	Leisure: Do it yourself, gardening: Frequency	2008, 2007, 2005, 2004
P99A13	Leisure: Disco: Frequency	2008, 2007, 2005, 2004, 2003, 2002
P99A18	Leisure: Theatre, opera, exhibition: Frequency	2008, 2007, 2006, 2005, 2004
P99A19	Leisure: Cinema: Frequency	2007, 2006, 2004
P99A43	Free time: Weekend: Number of hours	2004
P99A53	Leisure: Gardening: Frequency	2008, 2007, 2006, 2004
P99A57	Leisure: Cycle, motorcycle, car: Frequency	2005
P99C01	Health status	2004
P99C11	Number of days affected by health problems: Last 12 months	2006
P99D29	Partner: Yes, no	2004, 2003, 2002
P99E15	Education: Current training: Type	2004
P99F23	Child care outside HH without payment: Last 12 months	2006, 2005
P99I01	Satisfaction with financial situation	2006, 2004, 2003
P99N34	Participation in clubs or other groups	2008, 2007, 2006, 2005, 2004
P99N35	Voluntary work	2007, 2006, 2005, 2004
P99N39	Association membership: Local or parents	2004
P99N40	Association membership: Sports or leisure	2005, 2004
P99N41	Association membership: Culture	2004
P99N42	Association membership: Syndicate	2008
P99N45	Association membership: Charitable organisation	2004
P99N46	Association membership: Women	2007, 2006, 2005, 2004
P99P01	Interest in politics	2008, 2006, 2005, 2004
P99P04	Trust in Federal Government	2006, 2005, 2004
P99P06	Participation in federal polls	2008, 2007, 2006, 2005, 2004, 2003, 2002
P99P07	Future: Active in boycott	2008
P99P08	Future: Active in strike	2008
P99P09	Future: Active in demonstration	2008
P99P19	Party choice in case of elections tomorrow	2008
P99P24	Talking about politics: Frequency	2007, 2006, 2005, 2004
P99P26	Trust in political parties	2004
P99P28	Trust in organisations for the defence of human rights	2008
P99P29	Signing initiative: Last 12 months	2007
P99P30	Participating in political meetings: Last 12 months	2005
P99P40	Opinion on Swiss tradition: direction	2008, 2006, 2004, 2003, 2002
P99W04	Seeking job: Last four weeks	2004
P99W43	CMJ: Part-time work: Reason	2005

4.2 Construction of weights

In this section, we discuss the weighting procedure for the Swiss Household Panel (SHP). The general basis of the weight of an observation is the inverse of the estimated probability of responding. If the response probability were perfectly known, this would provide unbiased population totals for the variables of interest. This discussion is designed to give an idea of how the weights are produced and what techniques are used. If one is interested in a detailed exposition on the production of the weights for a given year, one should examine the documentation at http://www.swisspanel.ch/doc/weighting.php?lang=en&pid=8.

There are nine different weights produced for the SHP. They are the individual longitudinal, individual transversal, and the household transversal weights for the SHP I, SHP II, and the combined SHP I and II. Of these 9 weights, 4 are delivered in two forms each (discussed below) with the standard data sets:

1. the individual longitudinal weights for the SHP I,
2. the individual longitudinal weights for the combined panel (SHP I and SHP II),
3. the individual transversal weights for the combined panels, and
4. the household transversal weights for the combined panel.

These four weights are selected because they provide maximum sample sizes for most studies. Refer to 4.2.5 below for the selection of the appropriate weights according to the type of analysis.

The topics start with some of the technical points, namely the process of segmentation and the fashion that calibrations are done. The baseline weights are described in some detail as they are the basis of all wave specific weights. We then address the fashion that the individual longitudinal weights, the individual transversal weights and the household transversal weights are constructed for the two panels independently. A discussion on how the weights from the two independent panels are combined to form the three delivered weights for the combined panel is given. Finally, we close with some assistance in selecting and using the weights.

4.2.1 Overview of techniques

These are the principle techniques used in the formation of weights in the SHP context. The process of segmentation is used to determine the probability of being “in” the panel. The inverse of which is the basis of the weights. Calibrations are then used to adjust the weights so that certain population sums are correct (equal to the sums of the non-institutionalized Swiss population). The adjustments due to calibration are chosen to be as small as possible so that the introduction of bias for non-correlated variables is minimized.

4.2.1a The process of segmentation

Aside from the first wave weights of the SHP I, modeling of non-response in the SHP is done by the process of segmentation. The goal of segmentation is to determine the response probability for the panel members (or households).

The dataset is divided into response homogeneity groups (RHGs). The inverse of the response rate in each of these groups is the factor of correction for the weight in question (transversal, longitudinal etc.) for the members within each group. If non-response is random within the class, the response bias, after correction, is minimal. The selection of the RHGs is an iterative process. It begins with one class that is the entire dataset and a list of dummy variables. Then within a given class the variable that is determined to have the greatest effect on the likelihood of responding is then used to divide the class into two classes. Although there are other choices for the manner of selecting of the variable, the one used for the SHP is the algorithm CHAID, which selects the variable that has the highest chi-squared of Pearson. This process repeats until each class satisfies one of the following conditions: (1) none of the remaining variables is found to be significant on response rate, (2) the number of members of the class would fall below a given level — 50 in the case of the SHP I and 30 in the case of the SHP II — if the class were divided, and (3) the response rate would fall below a given level — .3 in the case of the SHP I and .5 in the case of the SHP II — if the class were divided.

4.2.1b The calibrations

After the adjustment for non-response, the weights are calibrated to four known population estimates to get estimates that are representative of the Swiss population:

- sex*age category (0-13, 14-24, 25-34, 35-44, 45-54, 55+),
- the number of individuals living in the regions lémanique, central, Tessin combined, versus the number of individuals living in the regions mittelland, north west, Zurich, oriental combined,
- the number of individuals with Swiss nationality, and
- the number of individuals married.

One should note that values for age 0-13 are used only for the household transversal weights and that the number of individuals married is not available for the longitudinal weight for SHP I.

The calibration is done by minimizing a distance function between the weights adjusted for non-response and all possible weights that satisfy the calibration estimates. The macro was developed by Jean-François Naud and Caroline Cauchon of Statistics Canada (2006). The distance function used is the so-called “linear”

$G_k(d_k, w_k) = \frac{(w_k - d_k)^2}{2 d_k q_k}$ where for individual k, d_k is the weight before calibration and w_k is the weight after and q_k is a factor independent of d_k that is imposed to be 1 in the case of the SHP. One problem with this distance function is that negative weights can appear. As we consider negative weights to have little fundamental sense we do not allow such weights in the final output. The method used for dealing with such weights when they do appear is to assign them their pre-calibration weight and re-calibrate.

4.2.2 Formation of initial weights or baseline weights

The initial weights are the basis of all wave specific weights. They begin with a design weight, which is the inverse of the probability of the household being selected into the sample. The design weights are then adjusted due to non-response in the first wave. The weight is adjusted for non-response up to the level of which households are fol-

lowed for the second wave on. For example households in the second panel were followed if they completed at least the grid in the first year whereas for SHP I only the so-called "complete" households were followed. As the rules of following varied initially between the two panels, so do the initial weights.

4.2.2a The initial weights for SHP I

The SHP I follows the complete households from wave 1. A household is considered complete if the household has responded to the grid questionnaire, the household questionnaire, and at least one person has responded to the individual questionnaire. As a result the initial weight for the SHP I is the design weight adjusted for non-response at these three levels of response. One should note that the adjustments for non-response were not done by segmentation, but by logit models. The formula for this initial weight is given by:

$$POIDINIT_k^{PSM_I} = \frac{1}{\pi_k * p_k^1 * p_k^2 * p_k^3 * f} \qquad (1)$$

The inverse of the factor π_k is the design weight, it is equal to the number of addresses selected in the region *i* divided by the total number of addresses in region *i*. As a consequence it varies from one great region to the next. The p_k^1 is the number of addresses that responded to the grid divided by the number of addresses selected. This is also computed at the level of the great regions. The p_k^2 is the probability, computed by a logit model, of the household responding to the household questionnaire given response to the grid. The p_k^3 is the probability that at least one member of the household responded to an individual questionnaire given that the household responded to the household questionnaire, again modeled by logit. Finally, f is a factor that is the same for the all households that assures that the weighted sum of individuals is equal to the estimated population total in 1999 (according to ESPOP of the Swiss Federal Statistical Office).

4.2.2b The initial weights for SHP II

The SHP II followed all of the households that responded to at least the grid in wave one. There was also a non-response questionnaire for those who did not respond to the grid. This non-response questionnaire was used in the modeling of the non-response at the grid level. As a consequence the initial weight had two levels of adjustment to the design weight. The formula for the initial weight is given by:

$$POIDINIT_l^{PSM_II} = \frac{1}{\pi_l * p_l^1 * p_l^2}. \qquad (2)$$

The terms are nearly the same as above, where p_l^1 is the adjustment for responding to the grid or non-response questionnaire and p_l^2 is the adjustment for the responding to the grid given responding to at least the non-response questionnaire.

4.2.3 Wave-specific weights

All the weights are based off of the initial weight, POIDINIT, which is the weight at baseline (1999 for SHP_I and 2004 for SHP_II) as described above. In a given wave, longitudinal individuals (who are the original sample members) are modeled for response at the

level of the grid. Only the adults aged 14 years and over are used. The method of modeling non-response is segmentation (Graf 2008). The inverse of the grid response rate for each RHG is the adjustment factor for the weight. Specifically, this adjusted weight is

$$P_NRGRIL = \frac{POIDINIT}{\pi_{RHG}}, \qquad (3)$$

where π_{RHG} is the response rate for the given RHG. This adjusted weight becomes the basis for all of the wave-specific weights.

The three types of weights presented below are all determined using the same methodology, which combines segmentation and calibration using population characteristics.

4.2.3a Individual longitudinal weights

These weights are for conducting longitudinal analysis and provide estimates representative of the baseline population—1999 for SHP I and 2004 for SHP II. Here, the segmentation is done on the response to the individual questionnaire for longitudinal individuals, conditional on having responded to the grid (no individuals are questioned before the grid is completed). First, a basic longitudinal weight, PL_NRQI, is produced from P_NRGRIL, in the same way as documented by equation (3). Second, to produce the wave-specific longitudinal weight, PL_NRQI is calibrated to estimated population characteristics discussed above for the baseline year (1999 for the SHP I and 2004 for the SHP II).

4.2.3b Individual transversal weights

These weights are for performing cross-sectional studies and for obtaining population totals representative for the year in question. A weight sharing is performed in households that have non-original sample members (non-OSMs). The weight share depends on whether the non-OSMs were present at baseline (1999 or 2004). If they were present, the weight is the same for all individuals of the household and is equal to

$$PTI_PAR = \frac{\sum_{i=1}^{L} P_NRGRIL_i}{L+P}, \qquad (4)$$

where L is the number of longitudinal individuals and P is the number of non-OSMs initially present. If the non-OSMs were not present at baseline, the weights are

$$PTI_PAR_j = \begin{cases} P_NRGRIL_j & \text{for longitudinal person } j \\ \dfrac{\sum_{i=1}^{L} P_NRGRIL_i}{L} & \text{for non-OSM initially absent } j \end{cases} \qquad (5)$$

Once the weight sharing is done, it is adjusted for non-response to the individual questionnaire, using segmentation to form PTI_NRQI. The segmentation analysis is performed using all individuals that are aged 14+ in the current wave and in households having responded to the grid and containing at least one longitudinal individual. Finally, the weight is calibrated to the current year's population estimates using the calibration technique already described.

4.2.3c Household transversal weights

These are designed to perform studies at the household level. A weight share is done on all households to give all members of the household the same weight. The sharing is the same as equation (4) (where P may be equal to 0). Next, this weight is adjusted by segmentation for the non-response to the household questionnaire, to form PTM_NRQM. This segmentation is done at the household level. All individuals (including those under 14) are then assigned this calculated household weight. Finally, a calibration is done under the restriction that all members of the same household must have the same weight. The calibration is as above.

4.2.4 Weights for the combination of the two panels

These weights are designed for performing analysis — longitudinal or transversal — using both the SHP I and SHP II combined. They are considered preferable as they provide the largest possible sample size. The combination of the two panels occurs at the level of the seven regions. The combination is a so-called "convex combination". This kind of combination has the form of multiplying the weights for members of the SHP I by a factor p and for members of the second panel by (1- p). By doing this, the introduction of new bias of sample sums is avoided. The factor of combination is $p = \frac{n_1}{n_1 + n_2}$, where n_1 is the number of responding units from the first panel and n_2 is the number of responding units from the second panel. The unit is either the person, in the case of the individual weights or the household in the case of the household weight.

The weights used are those after the final adjustment for non-response (PL_NRQI, PTI_NRQI, and PTM_NRQM respectively) as described above with one exception. The exception is the longitudinal weights for the SHP I. Since the non-response is computed in reference to 1999, a new correction for non-response is calculated making reference to whether the individual was eligible for the selection in the second panel (i.e. was living in Switzerland and non-institutionalized in 2004). If the unit is a member of SHP I, the weight is then multiplied by the factor p . If the unit is a member of the SHP II the weight is multiplied by the factor (1- p). This means that each sample is multiplied by the ratio of units in the sample. After this factor of adjustment is enacted, the panels are combined and then the weights are calibrated for the longitudinal, transversal individual, and transversal household weights as described above.

4.2.5 Selection of the appropriate weight

The weights should be used to get results that are representative of the targeted population, which is the non-institutionalized Swiss population. This is particularly true for descriptive statistics but they are also important to use in regression models, when possible, to obtain coefficients, the estimates of error and significance that are nationally representative.

In the selection of a weight, one needs to know whether the study concerns only one year, i.e. is transversal, or considers multiple years and is longitudinal in nature. If the study is done at the household level, only transversal weights are provided. This is because the household is a dynamic unit difficult to define longitudinally. Table 1 gives the names of the weights in the SHP and their reference.

For each of the four types of delivered weights, there are two weights produced. One is to give the weighted size of the sample the size of the relevant Swiss population. These are the weights as described in the constructions above. These weights should be used when looking for population totals. The second is to maintain the sample size. That is to say that the weighted sum of sample members is equal to the un-weighted sum. These weights should be used when running regressions, particularly logistic regressions. These weights differ by multiplication of a constant factor only. Table 1 gives a list of the names of all the weight variables as they appear in the data sets. Furthermore it describes their primary use. One should note that resident refers to the non-institutionalized population residing in Switzerland.

Table 4.5 List of weights contained in the dataset, variable names and description

Types of weights	Variable name	Description
Longitudinal weights		
SHP I individuals	wp$$LP1P	Weights for longitudinal adults expanded to the resident Swiss population of 1999
	wp$$LP1S	Weights expanded to the sample size of longitudinal adults in the first panel
SHP I and SHP II (combined) individuals	wp$$L1P	Weights for longitudinal adults expanded to the resident Swiss population of 2004
	wp$$L1S	Weights expanded to the sample size of longitudinal adults in the combined panels
Transversal weights		
SHP I and SHP II (combined) individuals	wp$$T1P	Weights expanded to the resident Swiss population of current year
	wp$$T1S	Weights expanded to the sample size of the combined panels
SHP I and SHP II (combined) households	wh$$T1P	Weights expanded to the resident Swiss population of current year
	wh$$T1S	Weights expanded to the sample size of individuals in the households

Note $$ corresponds to the two last digits of the year in question.

One should note that the longitudinal weights make reference to the "first year" that is 1999 for the first panel and 2004 for the combined panel. However, it is generally better to use a slightly imperfect longitudinal weight which will at least take into account inclusion probabilities and non-response then none at all.

4.2.6 Complex sample

Weighting provides estimates that are representative of the national population. Another issue has to be considered when using the SHP: the complex sample structure of the data. The standard procedures of common statistical software packages (e.g. SAS, SPSS, STATA) underestimate variance (Plaza and Graf 2007) because they assume a simple random sample. As most with most surveys, the SHP sample selection is more complex as it has stratification, clustering, and adjustments due to non-response. Such complex sample needs to be taken into account in the analysis to obtain appropriate estimates of the variance. For SAS users, the recommendation is to rely on the "survey"

procedures, for example PROC SURVEYFREQ, PROC SURVEYMEANS, PROC SURVEYREG, PROC SURVEYLOGISTIC. For STATA users, the commands 'svyset' and 'svy:' have to be used. For SPSS users, the module 'complex sample' is needed.

4.3 Data cleaning: Consistency checks and corrections

Before the data is released a few consistency checks are performed. First, the filters used in the questionnaire are checked. In the rare occasions in which a filter was applied wrongfully, a question was either asked when it should not have been, or was not asked when it should have been. In the first situation the answer to the question is deleted, and the value is set to -3 (not applicable, see missing value conventions). In the second situation a code of -7 is given (filter error, see missing value conventions).

Second, the value range of all questions with restricted response categories is verified. Values out of range are usually related to recoding mistakes and are corrected. The value ranges of open questions are not scrutinized, because setting a limit beyond which point values become highly unlikely is always arbitrary.

Third, the households and their individual members are examined to make sure there is information on all household members, and the number of household members adds up to the same number as in the household questionnaire. Also the variable related to response status is checked.

Finally, demographical variables are checked for consistency with earlier waves. This is done for gender, date of birth and civil status. For other variables the general rule is not to make changes retrospectively, i.e. when in a later wave of data collection an error is found in an earlier wave, this is not corrected for the earlier wave.

CHAPTER 5 DATA DOCUMENTATION

5.1 Data files

For every wave (every year) the data users find a household and an individual file. In addition to these annual files there are several other files: a household master file, an individual master file, a calendar file, a file containing information on respondents' last paid jobs, and a social origin file. All files are available in SAS, STATA and SPSS format.

5.1.1 Master files: households and individuals

The master files of households and of individuals include all households and individual respondents that are in the panel or have been in the panel in the past. The files contain an overview of response status for all waves.

The household master file (SHP_MH) contains all households of both samples of the panel. For every wave it is documented who the reference person is, what interviews have been carried out and when they have taken place.

The individual master file (SHP_MP) contains all individuals who have resided in the participating households in any of the waves. This file includes gender, date of birth (month and year), identification number of father and mother, response status and interview dates for all waves.

5.1.2 Annual files: households and individuals

The annual household files (SHP99_H_USER, SHP00_H_USER, etc.) contain information household interviews complemented by certain information from the grid questionnaire. For the constructed variables see 5.3.

The information from the yearly individual interviews (SHP99_P_USER, SHP00_P_USER, etc.) is included in the annual individual files. For the constructed variables in these files see 5.3.

For the complete questionnaires see Questionnaires under Documentation on www.swisspanel.ch.

5.1.3 Calendar file

Using the answers in the individual questionnaire, the calendar file contains for every person the activity[7] status in each month. If the person has answered the individual questionnaire in wave x, information on his/her activity is contained for:

- the past year (last 12 months) if the person has not answered the individual questionnaire in the preceding wave;
- the period between the individual interview in wave x-1 and the individual interview in wave x if the person has answered the individual interview both in wave x

[7] In terms of labour market situation. Here the term "activity" is used.

and in the preceding wave.
The activity calendar is empty for waves in which a respondent did not answer the individual questionnaire.

The variable names in the calendar file are as follows:
JAN$$: activity status in January in the year $$
FEB$$: activity status in February in the year $$
MAR$$: activity status in March in the year $$ etc ...

The calendar questions in the questionnaire have changed twice over the course of the years. Three periods can be distinguished: wave 2 & 3, wave 4 & 5, and wave 6 and thereafter. For all waves, however, the professional status at the time of the survey is determined by the variables:

- P$$W01 to P$$W03 (to distinguish between working for pay and not working for pay);
- P$$W39 and P$$W42 (to distinguish between fulltime and part-time employment);
- P$$W06 (to distinguish between unemployment and inactivity).

The respondents who did not work during the week preceding the survey or did not have a job are asked the following question (variable P$$W154):

You are not currently in paid employment. However, since (month-year) have you had a paid job, also be it casual or on an irregular basis?

Respondents who worked at the time of the survey were asked the following question (variable P$$W177):

Since (month-year) has there been a change in the number of hours you work, have you started or ended an activity or even been unemployed? (wave 2 to wave 5)

Since (month, year) have you changed your professional status (employee, self-employed), changed the amount of hours you work (full time, part time), started or stopped work, or been unemployed? (wave 6 and after)

In case the answer is “no” on one of these questions, the activity status by the time of the interview is assumed to hold for every month that elapsed since the preceding interview, or for the last 12 months if the respondent did not respond to the individual questionnaire in the preceding wave. For these cases the appropriate value is imputed for all months since the last wave.

In case the answer is “yes” on one of the questions above, i.e. if the person reported any changes in his/her status during the period considered, the calendar questions are asked and the employment situation is assessed for every month since the previous wave.

The calendar questions changed twice since the start of the survey. First, in wave 2 and 3 different questions were asked depending on whether or not the respondent had a paid job. Response categories differed between these two questions (see Table 5.1.1). In wave 4 and 5 both active and inactive respondents answered the same questions in the calendar, with slightly adapted response categories compared to earlier waves. Up

to wave 5 it is possible to distinguish between large and small part time jobs. From wave 6 onwards this distinction is no longer made, but separate response categories for self-employed respondents and employees are introduced instead.

Because the calendar file contains information from all waves some detail present in the separate waves has been lost. The calendar file does not include a distinction between small and large part-time jobs, nor does it have a distinction between self-employed individuals and employees. Users of the data interested in analyzing these distinctions are advised to use the calendar questions in the personal files of the appropriate waves.

In the calendar file the following codes are applied:
1. Employed full time
2. Employed part time
3. Unemployed
4. Inactive
5. Unemployed or inactive (relevant for inactive respondents in W2 and W3 only)

Table 5.1.1 shows the different versions of the calendar questions in the individual interviews and the corresponding codes in the calendar file.

Table 5.1.1 Questions in the personal questionnaire related to the activity calendar and the corresponding codes in the calendar file

W2 and W3				W4 and W5		W6 to present	
Original question Employed respondents	Calendar value	Original question Inactive respondents	Calendar value	Original question	Calendar value	Original question	Calendar value
We are going to review the months between now and (month-year) and for each month, I would like you to tell me if you have worked full-time or part-time or if you have not worked due to a period of unemployment, training or other reason?		We are going to review the months between now and (month-year) and for each month, I would like you to tell me if you have worked full-time or part-time?		We are going to review the months between now and (month-year) and for each month, I would like you to tell me if you have worked full-time or part-time or if you have not worked due to a period of unemployment, training or other reason?		We are going to review the months since (month, year) and for each month you should tell me whether your main activity was: full-time employee, part-time employee, full-time self-employed, part-time self-employed, unemployed, retired, training/education, housework, or any other situation?	
1 fulltime job (>37h)	1	1 fulltime paid job (>37h)	1	1 fulltime paid job (>37h)	1	1 Employee fulltime	1
2 part-time job (19-36h)	2	2 part-time paid job (19-36h)	2	2 part-time paid job (19-36h)	2	2 Employee part-time	2
3 small part-time job (1-18h)	2	3 small part-time job (1-18h)	2	3 small part-time job (1-18h)	2	3 Self-employed fulltime	1
4 unemployed	3	4 no job	5	4 unemployed	3	4 Self-employed part-time	2
5 continued education/ vocational retraining	4			5 continued education/ vocational retraining	4	5 Unemployed	3
6 other	4			6 retired	4	6 Retired	4
				7 other	4	7 Student	4
				8 student	4	8 At home (domestic work, children)	4
						9 Other inactive	4

5.1.4 Last job file

This file contains information on the last job of all individuals who were a) inactive at the time of their first interview, and b) interviewed in person or by proxy in any of the waves since 1999.

The information on the last job is collected within the individual interview if the following three conditions are simultaneously met:

- The person is interviewed for the first time
- The person does not currently work (P$$W01, P$$W02 and P$$W03 ≠ 1)
- The person has already worked in a regular way in the past (P$$W07 = 1)

The information on the last job may also be collected in a proxy interview, if the following three conditions are simultaneously met:

- It is the person's first proxy, which is done by an adult
- The person does not work (i.e. in the household grid, G$$OCC ≠ 1 or 2)
- The person has already worked for at least one year (X$$W05)

Because this information is collected only once, it is not necessary to display it in the individual file in every wave. The information is rather combined in a file « last job», comprising the variables of the individual questionnaire and the proxy questionnaire, in which the wave identifier is renamed by $$. A separate variable (LJYY) indicates the wave in which the information is collected.

Note that if a respondent is not working at a given wave, but has been working in any of the previous waves, this information is not included in the last job file, but has to be taken from the previous annual individual files.

5.1.5 Social origin file

This file contains information on the employment status of the parents when the respondent was 15 years old. All individuals who were personally interviewed in any of the waves are included.

Unique information about a person's social origin is collected during the first interview. It mainly relates to the composition of the household in which the person lived at the age of 15 and to the level of education and professional activities of both parents. Persons who are not yet 20 years old and still living with their parents are not asked about their parents' employment status. Note that individuals who have had their first interview before they turned 20 are not in the social origin file.

Given the uniqueness of this information, it doesn't make sense to attach it to each of the consecutive yearly waves. Therefore, the "social origin module" constitutes a specific file containing variable names, in which the usual two-digit number showing the year of the data collection is replaced by $$. A separate variable (OSYY) indicates the wave during which the data on the person's social origin have been collected.

The questions corresponding to the variables P$$O60 to P$$O65 have only been asked in the first wave (1999).
P$$O60 At age 15: Work in private households: Employer: Father
P$$O61 At age 15: Public Company status: Father

P$$O62 At age 15: Work in private households: Employer: mother
P$$O63 At age 15: Public Company status: Mother
P$$O64 At age 15: Work in private households: Employer: Other person
P$$O65 At age 15: Public Company status: Other person
Therefore, valid values are only available for the persons interviewed for the first time in wave 1. For all the others theses values are labelled 'missing'.

The questions regarding the parents' political orientation are asked since wave 4 (2002):
- P$$P46 Political position: Left, Right: Father
- P$$P47 Political position: Left, Right: Mother
In wave 4, every person responding to the individual questionnaire was asked these two questions in order to obtain this information also from persons having already been interviewed in previous waves in which the questions weren't posed. Since wave 5, these two questions are part of the social origin module and are addressed only to persons who are interviewed for the first time. Consequently, the information is missing for persons who answered the social origin module before wave 4 and who did not participate in wave 4.

5.1.6 Biographical files

To obtain, at a single occasion, additional information about the respondents' life course prior to the panel study, a retrospective biographical questionnaire was developed with questions regarding educational -, working -, and family history (SHP Questionnaires - Biography[8]). This paper-and-pencil questionnaire was sent to the respondents by mail and was self-administered.

Biographical information was gathered in the following domains:

1. Living arrangements (LA)
2. Periods outside of Switzerland (SA)
3. Changes in civil status (CS)
4. Learned professions (LP)
5. Educational trajectory (ED)
6. Work life (WL)
7. Family events (FE)
8. Retirement (RE)

In order to assess the potentially negative impact of the self-administered biographical questionnaire on the participation in subsequent waves of the yearly CATI, a "test" survey was conducted in 2001. The results showed that the drop-out rates did not increase substantially as a result of the questionnaire sent in between two waves (Scherpenzeel et al., 2002). Consequently, the "main" survey was carried out in 2002 with those participants that had not been part of the "test" survey.

SHP_I *biographical data* are available for 5,560 individuals with the 2001 and 2002 surveys combined. Therefore, some variables only exist for one of the survey years (e.g. education history only for 2002), or only in an aggregated form (e.g. living arrangement for 2001). The overall participation rate was 53%, but over 80% among fully longitudinal

[8] The paper and pencil questionnaire is not available in English, but only in the interview languages German, French and Italian.

panel survey respondents (years 1999-2004) participated in the biography survey (Budowski and Wernli, 2004).

The Biography Files include:
a) two *horizontal files* with lines representing individuals (Biography Master File – SHP0_MBI and Biography Data File SHP0_BH_USER), and

b) *vertical files* for **each** of the eight domains with lines representing "events" and not individuals, if appropriate (SHP0_BV&&_USER).

SHP0_MBI
The Biography master file contains the identification numbers (idpers) of all individuals who answered the biographical questionnaire (in 2001 or 2002). The master file further includes individual *population* weights (wp00tbgp) and *sample* weights (wp00tbgs). For methodological reasons, weights of zero had to be attributed to 199 persons.

SHP0_BH_USER
In the **horizontal file** each row represents one respondent. It contains in total 281 variables representing for each domain per episode the beginning, end and description. For example, for every employment, starting date, end date and several characteristics of the job are included, all as separate variables. Also individual *population* weights (wp00tbgp) and *sample* weights (wp00tbgs) are included in this file.

The vertical files

1. Living arrangements: SHP0_BVLA_USER
2. Periods outside of Switzerland: SHP0_BVSA_USER
3. Changes in civil status: SHP0_BVCS_USER
4. Learned professions: SHP0_BVLP_USER
5. Educational trajectory: SHP0_BVED_USER
6. Work life: SHP0_BVWL_USER
7. Family events: SHP0_BVFE_USER
8. Retirement: SHP0_BVRE_USER

In the eight vertical files (one file per domain) a row represents one episode. Respondents experiencing different episodes in a given domain - for example they have held several jobs - take up multiple rows in the file (one for every job). An index variable is included to preserve the order of the episodes of respondents.

5.1.7 Interviewer files

These files contain information gathered from the interviewers who conducted the SHP interviews by means of paper-and-pencil questionnaires. In all waves (except Wave 1, 3 and 4) the interviewers answered a short questionnaire. The questionnaires measure a number of interviewer characteristics: demographic traits such as sex, age, language and education, but also characteristics such as the attitude of the interviewers towards this type of study and towards sensitive questions. According to the SHP research interests, the questionnaires have been changing over time.

Attention!
The values of the variable "idint" in the Interviewer data files have been coded in order to protect the identity of the Interviewers. Consequently, the merging of the Interviewer-data with the Household and Individual level files is only possible after de-coding. Please contact Oliver Lipps for more details (oliver.lipps@fors.unil.ch). Note further that in 2008 (Wave 9), the interviewer ID changed. Because three digits to identify interviewers was not enough, all interviewers located in the Lausanne studio were added a value of 10,000 and all interviewers located in the Bern studio were added a value of 50,000. This is important for longitudinal interviewer analyses.

5.2 Variable naming conventions

The variable names are coherent over time. The only change is found in the year indicator. In order to assure consistency, the following conventions were adapted.

Year related variables: _yydnn
Non-year related variables (individual number, sex,…): _dnn

Where _ depends on the level of information:
P = Person
H = Household
G = Grid
X = Proxy

Where **yy** denotes the year:
99 = 19**99** 00 = 20**00** 01 = 20**01** , ….

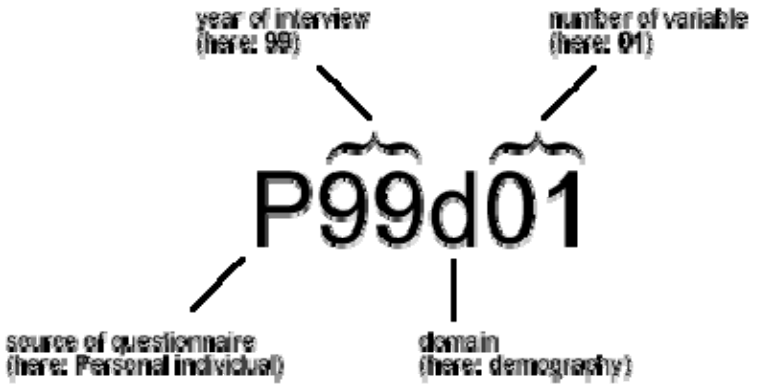
Where **d** denotes the **d**omain:

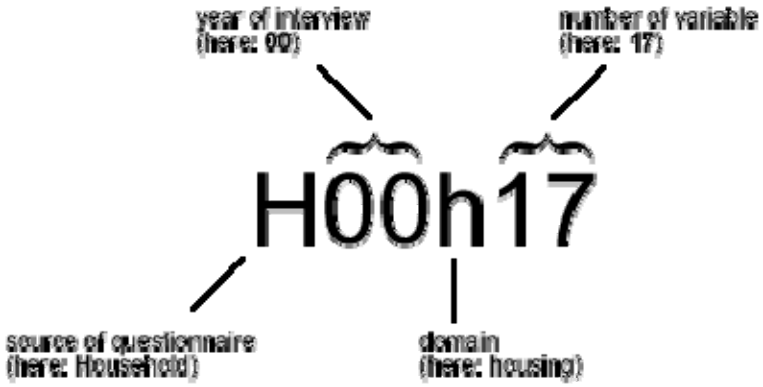
a	Hobbies, leisure, free time, lifestyle, holidays, etc.
b	Biography
c	Health, constitution
d	Demographic variables
e	Education
f	Family (climate, relationships, work repartition,…)
g	Grid
h	Housing
i	income, financial situation and living condition variables
l	life-events
m	geographical mobility
n	social networks
o	social origin
p	Politics
r	Religion
v	values, aspirations, (other than politic)
w	labour force, work ,social status

y	Violence
yth	Youth
z	other variables

Where **nn** is a two-digits number which refers to the **n**umber of the question, normally the position in a block dedicated to a specific topic.

Two examples:





Constructed variables do not follow the convention of variable naming and codification. These variables have a name corresponding to their contents (for example wstat00 for working status in 2000). They are classified by their respective domains in the codebook and are found in the module to which they belong (see 5.3).

5.3 Constructed variables

This paragraph presents background information on the construction of socio-demographic variables, education, labour market participation and income, socio-geographical information and weights. For all other constructed variables we refer to www.swisspanel.ch (under Documentation/Variables).

5.3.1 Socio-demographic variables

Tables 5.3.1 to 5.3.3 present the constructed socio-demographic variables in the household file (Table 5.3.1 and 5.3.2) and the individual file (Table 5.3.3)

Table 5.3.1 Household typology variables in household file

Variable name	Description	Information used for construction
HLDTYP$$	Type of household Classification adopted from **European Community Household Panel** (Eurostat, 2003) and PACO	Relationship to other persons in household, civil status, number of persons and children in household
HLDFFS$$	Household typology adopted from the **Fertility and Family Survey (FFS).** The FFS was launched by the United Nations Economic Commission for Europe and was commissioned by the Swiss Federal Statistical Office for Switzerland (www.bfs.admin.ch).	Relationship to other persons in household, civil status, number of persons and children in household
HLDCEN$$	Household typology **Swiss Census**, Swiss Federal Statistical Office (www.bfs.admin.ch)	Relationship to other persons in household, civil status, number of persons and children in household

Table 5.3.2 Household composition variables in household file

Variable name	Description	Information used for construction
MAXCOH$$	Maximum duration of existence of household in years	Longest time of two members living together in years (information from grid)
NBADUL$$	Number of adults in hld (>=18)	Information from grid
NBKID$$	Number of children in hld (0-17)	Information from grid
AOLDKI$$	Age of oldest coresident child (max. 17)	Information from grid
AYOUKI$$	Age of youngest coresident child (max. 17)	Information from grid
ADUK1_$$	Number of adult children in hld (>=18 & <30)	Information from grid and individual questionnaire
ADUK2_$$	Number of adult children in hld (>=30)	Information from grid and individual questionnaire
NBB_$$	New born baby: birth between two consecutive grid interviews or within last 12 months if no previous year grid interview	Information from household and individual master file

Table 5.3.3 Socio-demographic variables in individual files[a]

Variable name	Description	Information used for construction
AGE$$	Age in year of interview Difference from the year of birth and the official year of interview (official means the year of the beginning of the wave in question, even when interview took place beginning of following calendar year)	Collected once, confirmed next waves
CIVSTA$$	Civil status in year of interview	Information from household grid and personal interview. Equivalent to question P$$D13. Individual information is considered more reliable than from reference person
MAXCOP$$	Max. time in years of person living with someone else in household	Information from grid
NAT_1_$$	First nationality	Grid and individual questionnaire
NAT_2_$$	Second nationality	Grid and individual questionnaire
NAT_3_$$	Third nationality	Grid and individual questionnaire
HAB_CH$$	Duration of residence in CH: since when	Grid and individual questionnaire (G$$YCH + P$$D164)

[a]) Please not that gender of the respondent is included in the individual master file (see 5.1.1)

5.3.2 Education

Table 5.3.4 shows the constructed variables related to level of education. This list does not include the original or recoded variables related to education. For all available variables on education we advice to go to our website (www.swisspanel.ch under Documentation/Search by domains, select education).

Table 5.3.4 Constructed variables related to education in the individual files

Variable name	Description	Information used for construction
EDUCAT$$	Highest level of education achieved in 11 codes	From household grid and individual interview. Individual interview considered more reliable.
EDCAT$$	Highest level of education achieved in 17 categories	From household grid and individual interview. Individual interview considered more reliable.

5.3.3 Work status, occupation and social position

Work status (WSTAT$$) is constructed from P$$W01 (working for pay last week), P$$W03 (have a job although not working last week) and P$$W06 (can start work immediately), from the individual questionnaire.

All social stratification measures presented below are fundamentally based on the respondents' occupational titles, which were coded in great detail by the Swiss Federal Office of Statistics[9]. This Swiss-specific code was then recoded into the International Standard of Classification of Occupations (ISCO-88), developed by the International Labour Office[10]. The use of stratification schemas based on occupational titles – traditional in this field – has as a consequence that only people who report an occupational title can be classified. The following classifications were constructed:

A. The Wright class structure (Wright III)
B. Erikson, Goldthorpe and Portocarero's Comparative Analysis of Social Mobility in Industrial Nations schema(CASMIN)
C. The European Socio-economic Classification (ESeC)
D. The Swiss Socio-Professional Categories (CSP-CH)
E. Treiman's Prestige Scale
F. The Cambridge Social Interaction and Stratification Scale (Camsis)

For a comprehensive description of the different classifications we refer to Bergman and Joye (2001), which can be downloaded from www.swisspanel.ch under Documentation.

Table 5.3.5 to 5.3.7 shows the variables used to construct the different classifications. The classification of respondent's last job (is4laj$$), father's occupation and mother's occupation is done in the same way. The following explanation of the construction of the classification for respondent's current occupation is therefore also applicable to respondent's last occupation and father's and mother's occupation.

Table 5.3.5 Variables used to construct classifications for respondent's current ccupation

	Variable name	**profession**	**education**	**Hierarchical level (management, supervision, production)**	**Number of employees of self-employed**	**status (self-employed, employee, etc.)**	**gender**
WRIGHT3	WR3MAJ$$	IS4MAJ$$	EDUCAT$$	P$$W34	P$$W31	P$$W29	
GOLDTHORPE	GLDMAJ$$	IS4MAJ$$		P$$W34	P$$W31	P$$W29	
ESeC	ESECMJ$$	IS3MAJ$$		P$$W34	P$$W31	P$$W29	
CSP	CSPMAJ$$	P$$W28	EDUCAT$$	P$$W34	P$$W31	P$$W29	
TREIMAN	TR1MAJ$$	IS4MAJ$$		P$$W34	P$$W31	P$$W29	
CAMSIS	CAIMAJ$$	P$$W28					SEX

[9] Cf. Joye and Schuler (1995). For a discussion on how occupations are to some extent reflections of their national and temporal context, see Levy (2002).
[10] If some minor adjustments are made in order to adapt it to the European context, the label ISCO-88 (COM) is used. Cf. International Labour Office (1990). *International Standard Classification of Occupations, ISCO-88*. Geneva: ILO.

Table 5.3.6 Variables used to construct classifications for respondent's last occupation

	Variable name	profession	education	Hierarchical level (management, supervision, production)	Number of employees of self-employed	status (self-employed, employee, etc.)	gender
WRIGHT3	WR3LAJ$$	IS4LAJ$$	EDUCAT$$	P$$W117	P$$W114	P$$W112	
GOLDTHORPE	GLDLAJ$$	IS4LAJ$$		P$$W117	P$$W114	P$$W112	
ESeC	ESECLJ$$	IS3LAJj$$		P$$W117	P$$W114	P$$W112	
CSP	CSPLAJ$$	P$$W111	EDUCAT$$	P$$W117	P$$W114	P$$W112	
TREIMAN	TR1LAJ$$	IS4LAJ$$		P$$W117	P$$W114	P$$W112	
CAMSIS	CAILAJ$$	P$$W111					SEX

Table 5.3.7 Variables used for classifications for father's and mother's occupation

	Variable name	profession	education	Hierarchical level (management, supervision, production)	Number of employees of self-employed	status (self-employed, employee, etc.)
WRIGHT3	WA3FAJ$$/ WA3MOJ$$	IS4FAJ$$/ IS4MOJ$$	P$$O17/ P$$O34	P$$O16/ P$$O33	P$$O14/ P$$O31	P$$O13/ P$$O30
GOLDTHORPE	GLDFAJ$$/ GLDMAJ$$	IS4FAJ$$/ IS4MOJ$$		P$$O16/ P$$O33	P$$O14/ P$$O31	P$$O13/ P$$O30
ESeC	ESECFA$$/ ESECMO$$	IS3FAJ$$/ IS3MOJ$$		P$$O16/ P$$O33	P$$O14/ P$$O31	P$$O13/ P$$O30
CSP	CSPFAJ$$/ CSPMAJ$$	P$$O12/ P$$O29	P$$O17/ P$$O34	P$$O16/ P$$O33	P$$O14/ P$$O31	P$$O13/ P$$O30
TREIMAN	TR1FAJ$$/ TR1MOJ$$	IS4FAJ$$/ IS4MOJ$$		P$$O16/ P$$O33	P$$O14/ P$$O31	P$$O13/ P$$O30
CAMSIS	CAIFAJ$$/ CAIMOJ$$	P$$O12/ P$$O29				

A. The Wright class structure (Wright III)

The classification presented here was developed several years after the first and second versions (cf. Western & Wright, 1994). It was used in particular for the study of social mobility. Its main advantage, already present in Wright's second classification, rests in the explicit use of three dimensions: authority, expertise, and property. These dimensions form seven categories, instead of the twelve that Wright proposed in his second version. The reduction from twelve to only seven cells obviously increases the cell counts and, thus, statistical power.

A number of choices were made for the operationalisation and adaptation of this schema, some of which are necessarily rather arbitrary.[11]

[11] This recodification differs slightly from that of Levy et al. (1997).

a) Most cases of self-employment were unproblematic. In some cases, we attributed this status to family members employed in their own family business, as well as to those who considered themselves employees of their own enterprise.
b) The demarcation between "middle-class" and the "petty bourgeoisie" is often based on whether or not the respondent has employees. Here, by homogeneity with other classification schemas, we set the minimum qualification criteria to ten employees.
c) Competence derived from educational attainment are qualified in several ways:
    i) Directly relating to the occupation: ISCO-88 includes in its occupational classification an explicit reflection on the relations between educational attainment and occupational titles;
    ii) According to educational and training trajectories normally followed by those with a particular occupation as established from the Swiss Population Census of 1990;
    iii) Based on the respondents' attained educational and professional qualifications, whatever the relevance to their occupation.

Technically, the following rules were followed:
a) "Owners/Employers": self-employed and at least 10 employees;
b) "Petty bourgeoisie": self-employed and less than 10 employees
c) "Managers-Experts": professional leading10 or supervisory role, as well as an advanced educational attainment;
d) "Managers": salaried with supervisory position and not yet classified in any of the above categories;
e) "Professionals": salaried with advanced educational attainment but without supervisory functions;
f) "Semi-Professionnals": salaried with either advanced or middling educational attainment and with middling professional requirements;
g) "Worker": other workers.

B. Erikson, Goldthorpe and Portocarero's Comparative Analysis of Social Mobility in Industrial Nations schema (CASMIN)

The first Goldthorpe class schema was based on occupation and occupational status (self-employed, salaried). Originating from Goldthorpe and Hope's prestige scale (1974) and Goldthorpe's subsequent class schema (1987), two levels of classification were developed that included seven or 36 categories. Further development in conjunction with the CASMIN (Comparative Analysis of Social Mobility in Industrial Countries) project makes the seven-category schema more suitable for comparative investigations, and it has established itself as the most prominent schema for comparative intergenerational mobility studies. Contrary to earlier versions, the current incarnation requires information on the respondents' number of employees and supervisory function. As a class schema that is primarily used in comparative research, it is most frequently based on ISCO-88.

Ganzeboom and Treiman (2003) have successfully adapted the most recent Goldthorpe class schema and use the following codes:

1) Higher controllers;
2) Lower controllers;
3) Routine non-manual employees;

4) Self-employed with employees;
5) Self-employed without employees;
7) Manual supervisor;
8) Skilled manual employees;
9) Semi- and unskilled manual employees;
10) Farm labour;
11) Self-employed farmers.

It is more difficult than with other schemas presented here to assess how respondents are classified because several dimensions are integrated in complex and unspecified ways.[12]

C. The European Socio-economic Classification (ESeC)

The European Socio-economic Classification (ESeC) is a European occupationally based classification based on the Erikson-Goldthorpe-Portocarero (EGP) Schema.[13]

The information required to create ESeC is:

- occupation coded to the minor groups (i.e. 3-digit groups) of EU variant of the International Standard Classification of Occupations 1988 (ISCO88 (COM)
- details of employment status, i.e. whether an employer, self-employed or employee;
- number of employees at the workplace
- whether a worker is a supervisor.

[12] See Bergman and Joye (2001) for a more detailed discussion.
[13] This classification was developed by a consortium of nine institutes from the UK, Germany, France, the Netherlands, Sweden, Italy and Ireland. See for more information http://www.iser.essex.ac.uk/research/esec

Table 5.3.8: The European Socio-economic Classification

	ESeC Class	Common Term
1	Large employers, higher grade professional, administrative and managerial occupations	Higher salariat
2	Lower grade professional, administrative and managerial occupations and higher grade technician and supervisory occupations	Lower salariat
3	Intermediate occupations	Higher grade white collar workers
4	Small employer and self-employed occupations (excluding agriculture etc)	Petit bourgeoisie or independents
5	Self employed occupations (agriculture etc)	Petit bourgeoisie or independents
6	Lower supervisory and lower technician occupations	Higher grade blue collar workers
7	Lower services, sales and clerical occupations	Lower grade white collar workers
8	Lower technical occupations	Skilled workers
9	Routine occupations	Semi- and nonskilled workers
10	Never worked and long-term unemployed	Unemployed

The primary distinction in an employment relations approach is that between *employers*, who buy the labour of others and assume some degree of authority and control over them; *self employed* (or *'own account'*) *workers* who neither buy labour nor sell their labour to others; and *employees*, who sell their labour to employers.

Employees are further differentiated according to the employment relations of their occupation, employers are separated by size of establishment and the self-employed according to occupation. Broadly speaking, the kind of contracts employees have depend upon (a) how easily their work may be monitored and controlled by the employer and (b) 'asset specificity', i.e. how specific and crucial their knowledge of technical and organizational issues is to the employer. When monitoring is difficult and asset specificity is high, a service relationship will be typical; labour contracts apply where labour is more easily replaceable in these terms.

A complete user guide of the ESeC can be downloaded here:
http://www.iser.essex.ac.uk/research/esec/user-guide

D. The Swiss Socio-Professional Categories (CSP-CH)

The Swiss Socio-Professional Categories (CSP-CH; Joye & Schuler, 1995) are based on the occupational coding of the Swiss Federal Office of Statistics, as well as educational achievement. The logic of the CSP-CH is as follows:

Table 5.3.9 Swiss Socio-Professional Categories

	University	**Technical and Professional**	**Apprenticeship**	**Compulsory Education or Less**
Top Executives	1) top executives			
Self-Employed	2) liberal professions	3) self-employed		
Wage-Earners	4) intellectuals and managers	5) middle employees	skilled: 6) non-manual 7) manual	8) unskilled

The significance of an educational attainment may vary according to the details and title of an occupation, which has been taken into account in this schema. For example, a particular employee could be classified as being part of the intellectual professions based on her degree of managerial responsibility, without necessarily having a university education.

E. Treiman's Prestige Scale

Treiman proposes a very general stratification model for modern complex societies based on occupational prestige ratings that are supposedly independent of locality and invariant to national, social, and cultural settings. His work in this area culminates in the construction and validation of the Standard International Occupational Prestige Scale. Using the four nested levels of the International Standard Classification of Occupations (ISCO), Treiman's occupational prestige scores for each occupation within an ISCO level are averaged to produce a score for occupational groups as summarized by ISCO.

The subjectively attributed prestige of a specific occupation is (a) linked to the privilege and power which individuals enjoy based on their occupational titles, (b) invariant across social and cultural groupings, and (c) similar across all complex modern societies.

The Treiman Prestige Scale differs from Wright and Goldthorpe's class schema not only in that it measures subjectively attributed prestige as an indicator of access to structural and functional power, but also because it explicitly models a prestige hierarchy. The prestige scores range between of 0 (lowest prestige) and 100 (highest prestige; Treiman, 1977).

F. The Cambridge Social Interaction and Stratification Scale (Camsis)

The Cambridge Social Interaction and Stratification Scale (CAMSIS) is based on the idea that social structure can be expressed by the social distance between individuals, for instance through the co-occurrence of occupations that individuals hold and the relationships that they form with each other[14]. CAMSIS has been developed initially from friendship networks and, subsequently, from cohabiting couples (Stewart, Prandy, & Blackburn, 1980). For Switzerland, the Population Census of 1990 was used to examine the probability of co-occurrence of occupational titles between cohabiting couples.

In the simplest model, the distances between occupations of couples are calculated on the basis of the contribution of the cell toward the χ^2 of a contingency table. The χ^2 contribution for each cell is entered into a traditional correspondence analysis, which represents the best possible solution in a two-dimensional space. The first dimension represents the combination of occupations among couples who have the same occupational title (typical examples are couples, who both work together on a farm or a restaurant). The second dimension represents the social distance that is reflected in the typicality of pairings between couples' occupations. It should be added that the scores of a dimensional analysis do not have sociological significance in themselves but only in relation to each other. Here, the value allotted to each occupation (i.e. the score of the dimensional analysis) indicates its position on this hypothetical social axis and, consequently, its distance to others. Subsequently, each occupation of the 4-digit ISCO-88 classification is allotted a CAMSIS score. The current version adjusts for national variations and is sensitive to gender. Other dimensions can be easily accommodated (e.g. ethnicity, geographic region) in order to incorporate specific research interests and hypotheses, and to improve the correspondence between this measure and the social categories within their context.

See for more information Bergman et al. (2002) and Bergman and Joye (2001).

5.3.4 Professional integration

Paugam's typology is based on a distinction between conditions of employment and conditions of work. The typology distinguishes four types of professional integration (see Paugam, 2000). Secure integration ('intégration assurée') is defined as the combination of job stability and quality of work measured objectively and subjectively. Three forms of integration deviates from this model: *insecure integration* ('intégration incertaine') is the result of unstable job but good working conditions and satisfaction at work; *constrained integration* ('intégration laborieuse') is the product of a stable job, but with work constraints leading to dissatisfaction; and *disqualifying integration* ('intégration disqualifiante') corresponds to the combination of job instability and hard working conditions (Paugam, 2000).

[14] For more details, see Bergman, Lambert, Prandy, and Joye (2002).

5.3.5 Income

Respondents are asked about various income sources and total income both in the individual and in the household questionnaire. They are free to report gross or net amounts (after deduction of social security contributions) and to report monthly or annual income. At the basis of these questions, variables on yearly income amounts are constructed. Both net and gross incomes are constructed using standard assumptions on social security contribution (see www.swisspanel.ch). If monthly income has been indicated by respondents, annual income is calculated using information from two different sources: the number of months the respondent has received this income on the one hand and the activity calendar on the other. All constructed variables have passed a series of (manual) plausibility checks. These checks involve typing mistakes, high income increases or decreases with respect to the last wave, extreme income, inconsistencies between the sum of income sources and total income and inconsistencies between individual and household income (see. www.swisspanel.ch for details).

Individual income

Table 5.3.10: List of constructed income variables of individuals

Variable	Gross/net	Description
I$$EMPY	$$EMPYG gross I$$EMPYN net (social security contributions deducted)	Income from employment: annual amount Takes account of 13th and 14th month salary, bonuses and gratifications (see www.swisspanel.ch).
I$$INDY	I$$INDYG gross I$$INDYN net (social security contributions deducted)	Income from self-employment: annual amount Takes account of 13th and 14th month salary, bonuses and gratifications if applicable (see www.swisspanel.ch).
I$$OASIY		State pension for old-age (first pillar), widow(er)s or orphans: annual amount Includes additional benefits.
$$AIY		Disability pension: annual amount Includes additional benefits.
I$$PENY		Income from pension schemes (second pillar old-age pension): annual amount Includes additional benefits.
I$$UNEY		Income from unemployment social insurance: annual amount
I$$WELY		Income from welfare benefits (social assistance): annual amount
I$$GRAY		Income from scholarships, grants: annual amount Income from private or public institution
I$$INSY		Income from any another private or public institution: annual amount
I$$FAMY		Family or child allowances: annual amount Might additionally be included in income from employment
I$$PNHY		Payments received from individuals not in household: annual amount
I$$PIHY		Payments received from individuals in household: annual amount
I$$OSY		Other income: annual amount Might include 3rd pillar, inheritance, income from capital, such as income from wealth, letting, sub-letting
I$$PTOT	I$$PTOTG, gross I$$PTOTN, net (social security contributions on employment income de-	Yearly total personal income: annual amount In most cases, total income has been calculated by adding the different income sources. In case of non-response in any of the income sources (and in some other cases in waves 1 to 5), total

	ducted)	income refers to a global assessment of income. Amounts of income sources which represent one-off payments over 12'000 CHF, are not considered in total income.
I$$WY	I$$WYG, gross I$$WYN, net (social security contributions deducted)	Income from employment: annual amount Takes account of 13th and 14th month salary, bonuses or gratifications if applicable (see www.swisspanel.ch). From 2002 on: sum of I$$EMPY, I$$INDY
I$$STPY		Social public transfers: annual amount. From 2002 on: sum of I$$UNEY, I$$WELY, I$$GRAY, I$$INSY
I$$STFY		Income from private persons (informal transfers): annual amount From 2002 on: sum of I$$PNHY, I$$PIHY
I$$AVSY		Income from old age or disability pension: annual amount From 2002 on: sum of I$$OASIY, I$$AIY, I$$PENY

The questions on income have changed over the duration of the panel (cf. Table 5.3.11). With the exception of family allowances (only asked from 2004 onward) as well as old-age pension and other income sources in 1999 (old-age pension not asked in 1999), these changes should not influence comparisons across waves. The variables collected from 1999-2001 can be constructed for all years by aggregating different income sources as shown in the table.

Table 5.3.11 Collection of individual income, by wave

1999	2000-2001	2002-2003	from 2004
I$$WY	I$$WY	I$$EMPY	I$$EMPY
		I$$INDY	I$$INDY
-	I$$AVSY	I$$OASIY	I$$OASIY
		$$AIY	$$AIY
		I$$PENY	I$$PENY
I$$STPY	I$$STPY	I$$UNEY	I$$UNEY
		I$$WELY	I$$WELY
		I$$GRAY	I$$GRAY
		I$$INSY	I$$INSY
-	-	-	I$$FAMY
I$$STFY	I$$STFY	I$$PIHY	I$$PIHY
		I$$PNHY	I$$PNHY
I$$OSY	I$$OSY	I$$OSY	I$$OSY

Household income

There are two different ways of constructing household income. Firstly, in the household questionnaire, reference persons are asked to estimate total household income (sum of all household members). Secondly, in the individual questionnaire, household members (from 14 years of age) are asked about their personal income. Total individual income amounts (corrected for within-household transfers) are then added to calculate household income. The constructed variables on household income (listed below) represent the sum of individual income in two cases: either if all individuals have answered the income questions in the individual questionnaire or if the sum of individual income is larger than the household-income from the household questionnaire. In the other cases,

household income from the household interview is taken. Only if household income is based on individual income, adjustments are made for gross and net income.

Table 5.3.12 List of constructed income variables of households

Variable	Gross/net	Description
I$$HTY	I$$HTYG, gross I$$HTYN, net (social security taken account of where possible)	Yearly income from all members Taxes not deducted
I$$EQS	I$$EQSG, gross I$$EQON, net (social security taken account of where possible)	Yearly household income, equivalised according to SKOS scale 1998 (see www.swisspanel.ch). Taxes not deducted
I$$EQO	I$$EQOG, gross I$$EQON, net (social security taken account of where possible)	Yearly household income, equivalised according to modified OECD scale (see www.swisspanel.ch). Taxes not deducted

Additional Income variables

- The constructed annualised income variables of the SHP user files have been imputed if the amount was missing (don't know, no answer, implausible value). These imputed values are available from the SHP-team upon request (email to ursina.kuhn@fors.unil.ch).
- The SHP cross-national equivalent file (CNEF) contains income sources defined slightly differently than in the SHP user file. The CNEF-variables – with the exception of professional income – report income on the household level. Missing values have been imputed. A contract for CNEF-variables can be downloaded from www.swisspanel.ch. The documentation on CNEF variables can be found in the SHP Working Paper 5_09 (download from www.swisspanel.ch under publications).
- Original responses on the questionnaire are available from the SHP-team upon request (email to ursina.kuhn@fors.unil.ch).

5.3.6 Geographical information

In addition to the region (REGION$$, 7 regions) and the canton (CANTON$$, 26 cantons) in which the household resides, two community typologies are constructed. This variable is constructed based on the political municipality codes (provided by the Swiss Statistical Office, see Schuler, Dessemontet & Joye, 2005, 116f), and recoded into 22 codes based on the municipality in which the household is located ('communes' or 'Gemeinden'). An aggregated version of this variable in 9 categories is provided as well. Table 5.3.13 provides the names and labels of these variables as well as how COM1_$$ is aggregated into COM2_$$.

Table 5.3.13 Coding of the community typology variables

	COM1_$$		COM2_$$
1	Great urban centres	1	Centres (1,2,3)
2	Median sized urban centres		
3	Small centres		
4	Centre of peripheral region		
5	Wealthy communes	3	Wealthy communes (5)
6	Tourist communes	5	Tourist communes (6,7)
7	Semi-tourist commune		
8	Communes with homes and asylums		
9	Labour/job communes in large central regions	2	Suburban communes (9,10,12,13)
10	Suburban residential communes in large central regions		
11	Peripheral urban communes in large central regions	4	Peripheral urban communes (11,14)
12	Labour/job communes outside large central regions		
13	Suburban residential communes outside large central		
14	Peripheral urban communes outside large central regions		
15	Net immigration communes, moderate or high proportion	7	Rural commuter communes (15,16)
16	Native resident communes, moderate or high proportion		
17	Communes with industrial and tertiary sector employment	6	Industrial and tertiary sector communes (4,8,17,18)
18	Communes with industrial employment		
19	Communes with agricultural and industrial employment	8	Mixed agricultural communes (19,20)
20	Communes with agricultural and tertiary sector employment		
21	Communes with agricultural employment population	9	Peripheral agricultural communes (21,22)
22	Communes with strongly shrinking population		

The municipality codes themselves are not included to guarantee the anonymity of the respondents. Under certain conditions are the codes available for users of the data. This requires special authorization and is only possible when anonymity of the households can be guaranteed.

Other constructed variables in the household file related to socio-geographical characteristics of the household are HHMOVE$$ (whether the household moved since the last interview).

Table 5.3.14 Household moved since last interview (HHMOVE$$)

Variable	Label	Constructed from
HHMOVE$$	moved since last interview	grid and M.I.S. Trend information

5.4 Missing value conventions

The following missing value labels are used:

-1 does not know
-2 no answer
-3 inapplicable. This means either
    a) the specific question was not applicable for the respondent
    b) the respondent did not participate in this particular wave
    c) the entire household did not respond/was not contacted
-7 filter error (a question should have been asked but was not)
-8 other error

5.5 Imputation procedures

Apart from the consistency checks and corrections (see 4.4) no values are changed or imputed. Upon request imputed values on most income variables are available (contact ursina.kuhn@fors.unil.ch).

5.6 Combining data files

Table 5.6.1 shows the identification numbers that are available in the different data files. The personal ID (idpers) can be found in all files on the individual level, always referring to the same individual. The interviewer ID is available in the interviewer files (see 5.1.7) and the annual individual and household files.

As the composition of households can change over time, their identification number is wave specific.

Identification numbers of parents and spouses refer to their personal ID. For example, to match parents and children, one can attach the info of the parent to the info of the child, by matching idmoth$$ and idfath$$ (idmoth__ and idfath__ in STATA and SAS) to idpers.

To combine information from the household reference person with the household, refper$$ needs to be matched to idpers in the individual file. To add information from the partner to this file rpspou$$ needs to be matched to idpers.

Table 5.6.1 Identification numbers

variable	In files[a]	description
idint[b]	P, H, V	ID of interviewer
Idpers	P, MP, SO, CA, LJ, BH, BV	ID of person
Idhous$$	P, H, MP, MH, BH	ID of household
Idfath$$	MP	ID of father
Idmoth$$	MP	ID of mother
Idspou$$	P	ID of partner
Refper$$	H, MH	ID of reference person in hld
Rpspou$$	H	ID of partner of reference person

[a]) P individual questionnaire (wave specific)
H household questionnaire (wave specific)
MP master file individuals
MH master file households
V interviewer file
SO social origin
CA activity calendar
LJ last job
BH biographical file (horizontal)
BV biographical file (vertical)

[b]) **Attention!**
The values of the variable "idint" in the Interviewer data files have been coded in order to protect the identity of the Interviewers. Consequently, the merging of the Interviewer-data with the Household and Individual level files is only possible after de-coding. Please contact Oliver Lipps for more details (oliver.lipps@fors.unil.ch).

On www.swisspanel.ch there are examples of programming in SAS, SPSS and STATA of how to combine different files (such as matching respondents across waves, matching respondents to households, matching couples, etc.).

5.7 Changing the language of the variable and value labels

Variables and values labels are available for each data file in French, German, Italian and English. The files containing the syntax are:

- Variable_labels_SHP_$WAVE$_$QUEST$_$LANGUAGE$.txt
- Value_labels_SHP_$WAVE$_$QUEST$_$LANGUAGE$.txt

$WAVE$ is to be replaced by:
W1 = Wave 1
W2 = Wave 2
W3 = Wave 3
W4 = Wave 4
W5 = Wave 5
W6 = Wave 6
W7 = Wave 7
W8 = Wave 8
W9 = Wave 9
W10= Wave 10
WA = Waves ALL (modules CA, LJ, MP, MH, OS)

$QUEST$ is to be replaced by:

P = Individual
H = Household
X = Proxy
CA = Activities calendar
LJ = Last Job
MP = Individual Masterfile
MH = Household Masterfile
OS = Social Origin

$LANGUAGE$ is to be replaced by:
E = English
F = Français
D = Deutch
I = Italiano

For **SPSS** labels
To label a SPSS data file, open the files located in the '\LABELS\SPSS\$WAVE$\$LANGUAGE$\' directory in a syntax editor and run the syntax.

For **STATA** labels
To label a STATA data file, open the files located in the '\LABELS\STATA\$WAVE$\$LANGUAGE$\' directory in a do-file editor and run the syntax. Note that all STATA file names variable names use lower case letters.

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Appendix A List of cantons in Switzerland

Aargau (AG)
Appenzell Ausserrhoden (AR)
Appenzell Innerrrhoden (AI)
Basel-Stadt (BS)
Basel-Landschaft (BL)
Bern (BE)
Fribourg (FR)
Geneva (GE)
Glarus (GL)
Graubünden (GR)
Jura (JU)
Lucerne (LU)
Neuchâtel (NE)
Nidwalden (NW)
Obwalden (OW)
Schaffhausen (SH)
Schwyz (SZ)
Solothurn (SO)
St. Gallen (SG)
Thurgau (TG)
Ticino (TI)
Uri (UR)
Valais (VS)
Vaud (VD)
Zug (ZG)
Zurich (ZH)

Appendix B Participation in the Swiss Household Panel

Table B.1 Participation in the "Living in Switzerland Panel Survey" 1999-2008 (SHP_I)

Number of participating units	**SHP _I 1999 (w1)**	**SHP _I 2000 (w2)**	**SHP _I 2001 (w3)**	**SHP _I 2002 (w4)**	**SHP _I 2003 (w5)**	**SHP _I 2004 (w6)**	**SHP _I 2005 (w7)**	**SHP _I 2006 (w8)**	**SHP _I 2007 (w9)**	**SHP _I 2008 (w10)**
Households with grids completed	5,074	4,532	4,314	3,685	3,289	2,918	2,526	2,580	2,893	2793
Household interview completed	**5,074**	**4,425**	**4,139**	**3,582**	**3,227**	**2,837**	**2,457**	**2,537**	**2,817**	**2718**
Persons living in participating households	12,931	11,678	11,116	9,537	8,478	7,517	6,491	6,587	7,225	6905
Persons aged 14 years and older eligible for individual interviewing	10,293	9,297	8,942	7,553	6,719	5,976	5,220	5,333	5,972	5740
Personal interview completed	**7,799**	**7,073**	**6,601**	**5,700**	**5,220**	**4,413**	**3,888**	**4,091**	**4,630**	**4494**
Proxy Interviews [a]	2,638	2,381	2,174	1,984	1,724	1,482	1,241	1,237	1,226	1127
Persons responding in current and all previous waves	------	6,335	5,429	4,480	3,888	3'076	2,622	2,399	2,209	2060
Grid level net response rates [b]	64%	91%	88%	86%	90%	82%	91%	87%	86%	91%
Individual level net response rates [c]	85%	84%	88%	89%	88%	85%	87%	81%	81%	82%

Source: Swiss Household Panel, 1999-2008 (http://www.swisspanel.ch/)

[a] The SHP proxy interviews include information about children under 14 years and adult persons unable to respond to the survey (old age, handicap, etc.);
[b] Referring to all gross households minus those with neutral problems (neutral problems: invalid telephone, etc.).
[c] Referring to all called individuals minus those with neutral problems (foreign language etc.).

Note: SHP_I denotes the original households recruited in 1999.

Table B.2 Participation in the "Living in Switzerland Panel Survey" 2004-2008 (SHP_I+II)

Number of participating units	**SHP_I 2004 (w6)**	**SHP_II 2004 (w1)**	**SHP_I 2005 (w7)**	**SHP_II 2005 (w2)**	**SHP_I 2006 (w8)**	**SHP_II 2006 (w3)**	**SHP _I 2007 (w9)**	**SHP _II 2007 (w4)**	**SHP _I 2008 (w10)**	**SHP _II 2008 (w5)**
Households with grids completed	2,918	2,704	2,526	1,908	2,580	1,754	2,893	1.548	2793	1663
Household interview completed	**2,837**	**2,538**	**2,457**	**1,799**	**2,537**	**1,684**	**2,817**	**1.494**	**2718**	**1546**
Persons living in participating households	7,517	6,569	6,491	4,673	6,587	4,276	7,225	3,777	6905	3984
Persons aged 14 years and older eligible for individual interviewing	5,976	5,376	5,220	3,845	5,333	3,500	5,972	3,123	5740	3291
Personal interview completed	**4,413**	**3,654**	**3,888**	**2,649**	**4,091**	**2,568**	**4,630**	**2,350**	**4494**	**2410**
Proxy Interviews [a]	1,482	1,117	1,241	772	1,237	745	1,226	639	1127	647
Persons responding in current and all previous waves	3,076	------	2,622	2,395	2,399	1,930	2,209	1,601	2060	1400
Grid level net response rates [b]	82%	65%	91%	81%	87%	78%	86%	84%	91%	81%
Individual level net response rates [c]	85%	76%	87%	75%	81%	78%	81%	80%	82%	80%

Source: Swiss Household Panel, 1999-2008 (http://www.swisspanel.ch/)

Table B.3 Participation in the "SILC Survey" 2004-2005 (SILC_I+II)[a]

Number of participating units	**SILC_I 2004 (w1)**	**SILC_I 2005 (w2)**	**SILC_II 2005 (w1)**
Households with grids completed	2,287	1,103	1,263
Household interview completed	**2,199**	**1,064**	**1,204**
Persons living in participating households	5,450	2,689	3,015
Persons aged 14 years and older eligible for individual interviewing	4,441	2,168	2,470
Personal interview completed	**3,498**	**1,683**	**1,797**
Proxy Interviews [a]	118	73	51
Persons responding in current and all previous waves	------	------	------
Grid level net response rates [b]	73%	79%	76%
Individual level net response rates [c]	90%	83%	80%

Source: Swiss Household Panel, 1999-2008 (http://www.swisspanel.ch/)

[a]) The SHP participated in a joint venture project “Living in Switzerland-2020” aimed at conducting the Statistics of Income and Living Conditions (SILC) pilot study 2004-2005 in collaboration with the Swiss Federal Statistical Office. The SILC pilot data were distributed by the SHP until the end of 2008.

Appendix C Attrition by demographic characteristics and social involvement

Below demographic characteristics and social involvement attitudes and behaviour of both samples of the SHP are presented for respondents with different response patterns. A selection is made of respondents who have participated in an individual interview at least once, and who have not left the panel (i.e. not deceased, institutionalized or out of the country). A distinction is made between respondents who are interviewed in every wave, those who are interviewed irregularly, and those who dropped out of the panel (this implies the respondent is not there in the last three waves (SHP I) or the last two waves (SHP II)). Note that calculations are based on unweighted data.

Table C.1 Demographic characteristics and social involvement attitudes and behaviour by response pattern (SHP I, 1999-2008)

	Always in n = 2,630	**Ever out n = 2,856**	**lost n = 4,675**
Sex (%)			
men	41.10	47.69	47.02
women	58.90	52.31	52.98
Age (%)			
14 to 19	17.38	24.86	16.30
20 to 29	10.15	13.06	19.42
30 to 39	23.38	19.61	19.40
40 to 49	18.82	17.75	17.18
50 to 59	15.74	12.96	12.11
60 +	14.52	11.76	15.59
Education (%)			
compulsory school	27.72	36.52	31.15
upper secondary level (vocational)	37.19	35.15	40.35
upper secondary level (matura)	10.57	9.78	10.27
tertiary level (vocational)	12.85	10.10	9.58
tertiary level (university)	11.67	8.44	8.64
Swiss nationality (%)	94.45	91.49	87.10
Region[b] (%)			
Lake Geneva	16.46	17.82	18.01
Middleland	26.08	23.70	25.30
North-west Switzerland	15.67	13.76	14.18
Zurich	18.21	16.18	15.61
East Switzerland	10.46	14.92	13.95
Central Switzerland	9.54	9.35	8.56
Ticino	3.57	4.27	4.39
Urbanization			
highly and moderately urbanized centres	58.75	57.21	59.68
small urban centres	9.24	10.82	10.95
communes of urbanized centres	12.89	10.64	11.17
communes of small urban centres	8.63	8.82	6.78
communes remote from urbanized centres	10.49	12.50	11.42
Civil status (%)			

single, never married	34.60	42.79	39.82
married	54.26	47.37	47.99
separated	1.37	1.33	1.07
divorced	6.46	5.88	6.25
widower/widow	3.31	2.63	4.88
Children in household %	57.19	64.80	56.40
Employment (%)			
active occupied	61.37	62.85	64.71
unemployed	1.14	1.68	2.10
not in labour force	37.49	35.47	33.20
Owner residence (%)	51.98	50.14	44.30
Mean satisfaction with health (0-10)	8.32	8.25	8.16
(sd)	(1.70)	(1.83)	(1.90)
Participate in clubs (%)	59.77	52.80	47.18
Mean participated in polls (0-10)[c]	7.77	7.14	6.66
(sd)	(2.95)	(3.17)	(3.46)
Mean general trust in people (0-10)[d]	5.91	5.62	5.39
(sd)	(2.35)	(2.37)	(2.52)
Mean interest in politics (0-10)	5.43	5.07	4.71
(sd)	(2.79)	(2.81)	(2.94)
Mean political influence (0-10)	3.48	3.43	3.16
(sd)	(2.60)	(2.61)	(2.71)
Mean trust in government (0-10)	6.00	5.83	5.65
(sd)	(2.03)	(2.16)	(2.34)

[a]) Out of sample: left the country, institutionalized

[b])Region: Lake Geneva: VD, VS, GE; Middleland: BE, FR, SO, NE, JU; North-west Switzerland: BS, BL, AG; Zürich; East Switzerland: GL, SH, AR, AI, SG, GR, TG; Central Switzerland: LU, UR, SZ, OW, NW, ZG; Ticino. See Appendix A for a list of cantons.

[c]) Only asked to respondents with the right to vote

[d]) Asked from 2002 onwards

Table C.2 Demographic characteristics and social involvement attitudes and behaviour by response pattern (SHP II, 2004-2008)

	Always in n = 1,500	Ever out n = 1,315	lost n = 1,569
Sex (%)			
men	43.3	47.3	47.8
women	56.7	52.7	52.2
Age (%)			
14 to 19	13.1	19.5	14.2
20 to 29	7.7	15.7	18.0
30 to 39	19.7	16.9	17.6
40 to 49	22.7	17.9	19.0
50 to 59	15.7	13.6	14.0
60 +	21.0	16.3	17.2
Education (%)			
compulsory school	20.6	27.8	26.8
upper secondary level (vocational)	37.8	38.1	39.8
upper secondary level (matura)	11.5	9.3	10.1
tertiary level (vocational)	17.5	14.7	14.0
tertiary level (university)	12.6	10.1	9.3
Swiss nationality (%)	90.1	78.6	81.0
Region[b] (%)			
Lake Geneva	17.0	17.3	19.7
Middleland	24.4	25.2	23.4
North-west Switzerland	13.3	13.1	14.2
Zurich	20.6	18.3	16.7
East Switzerland	12.5	13.4	13.0
Central Switzerland	9.6	9.3	9.3
Ticino	2.7	3.4	3.8
Urbanization			
highly and moderately urbanized centres	64.9	62.9	63.1
small urban centres	8.8	10.1	10.0
communes of urbanized centres	10.0	9.7	10.2
communes of small urban centres	7.2	6.0	6.7
communes remote from urbanized centres	9.1	11.3	10.0
Civil status (%)			
single, never married	30.7	42.7	39.8
married	55.1	45.2	46.2
separated	1.7	2.3	1.6
divorced	7.4	6.2	7.5
widower/widow	5.1	3.7	4.9
Children in household %	51.3	54.6	52.7
Employment (%)			
active occupied	67.8	67.5	67.7
unemployed	1.4	3.4	3.3
not in labour force	30.8	29.1	29.1
Owner residence (%)	52.0	50.3	44.3
Mean satisfaction with health (0-10)	8.23	8.20	8.17
(sd)	(1.79)	(1.78)	(1.97)

Participate in clubs (%)	52.7	49.1	44.1
Mean participated in polls (0-10)[c]	7.93	7.37	7.18
(sd)	(2.98)	(3.11)	(3.32)
Mean general trust in people (0-10)[d]	5.54	5.47	4.96
(sd)	(2.45)	(2.34)	(2.60)
Mean interest in politics (0-10)	5.83	5.29	4.97
(sd)	(2.84)	(2.80)	(3.01)
Mean political influence (0-10)	3.58	3.81	3.45
(sd)	(2.71)	(2.61)	(2.72)
Mean trust in government (0-10)	5.32	5.43	5.21
(sd)	(2.18)	(2.21)	(2.33)

[a]) Out of sample: left the country, institutionalized

[b])Region: Lake Geneva: VD, VS, GE; Middleland: BE, FR, SO, NE, JU; North-west Switzerland: BS, BL, AG; Zürich; East Switzerland: GL, SH, AR, AI, SG, GR, TG; Central Switzerland: LU, UR, SZ, OW, NW, ZG; Ticino

[c]) Only asked to respondents with the right to vote

[d]) Asked from 2002 onwards